Leica GEOSYSTEMS

LES
ACCURATE SOLUTIONS. TRUSTED GUIDANCE.

Reality Capture Solutions

CitA Tech Live – 2026

John Kerrigan & Kevin O’Neill

HEXAGON

Agenda

Terrestrial Laser Scanner (TLS)

Deliverable & Applications (TLS+MLS)



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TLS



MLS



MMS

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TLS Portfolio

BLK360 SE | BLK360 | RTC300 | RTC500 | RTC700











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NEW RTC SERIES
One Trusted design – Three levels of performance



Leica RTC 300



Leica RTC 500



Leica RTC 700

Capture Faster, Decide Sooner, Deliver More

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RTC SERIES



Leica RTC 300

Agile productivity built to grow

- **1 MHz scan rate**
- **85 m range**

Flagship point cloud accuracy and visual quality with high tilt accuracy

New collaborative workflows

Light surveying workflows with **target detection directly from full-dome scans**



Leica RTC 500

High productivity without complexity

- **2 MHz scan rate at maximum range**
- **130 m range**

Flagship point cloud accuracy, tilt accuracy and visual quality are combined with flagship efficiency

Light surveying workflows with **target detection directly from full-dome scans**



Leica RTC 700

Maximum capability for the most demanding projects

- **2 MHz scan rate at maximum range**
- **270 m range**

Multiple resolution scanning
denser **1.6 mm @ 10 m**

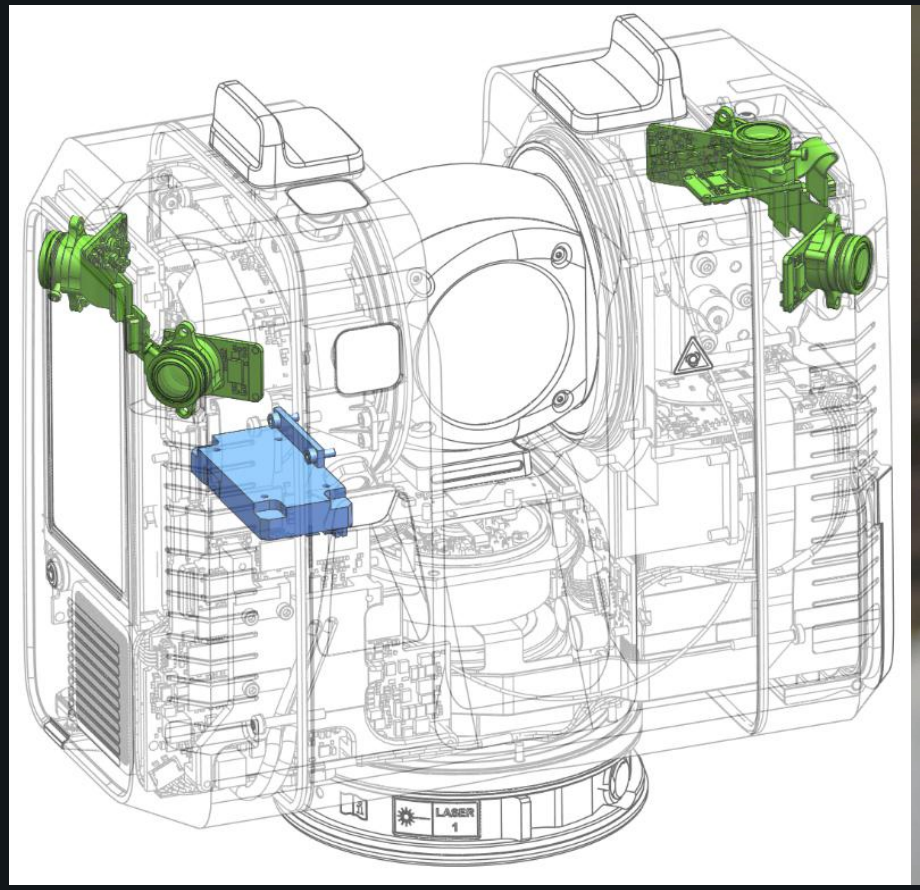
Area Scan
Exclusive access to **0.8 mm @ 10 m** resolution for ultra-detailed area scan

- **Full surveying workflows:**
  - Setup over known point
  - Resection
  - Traverse

Dedicated target scans with extender range **up to 75 m**

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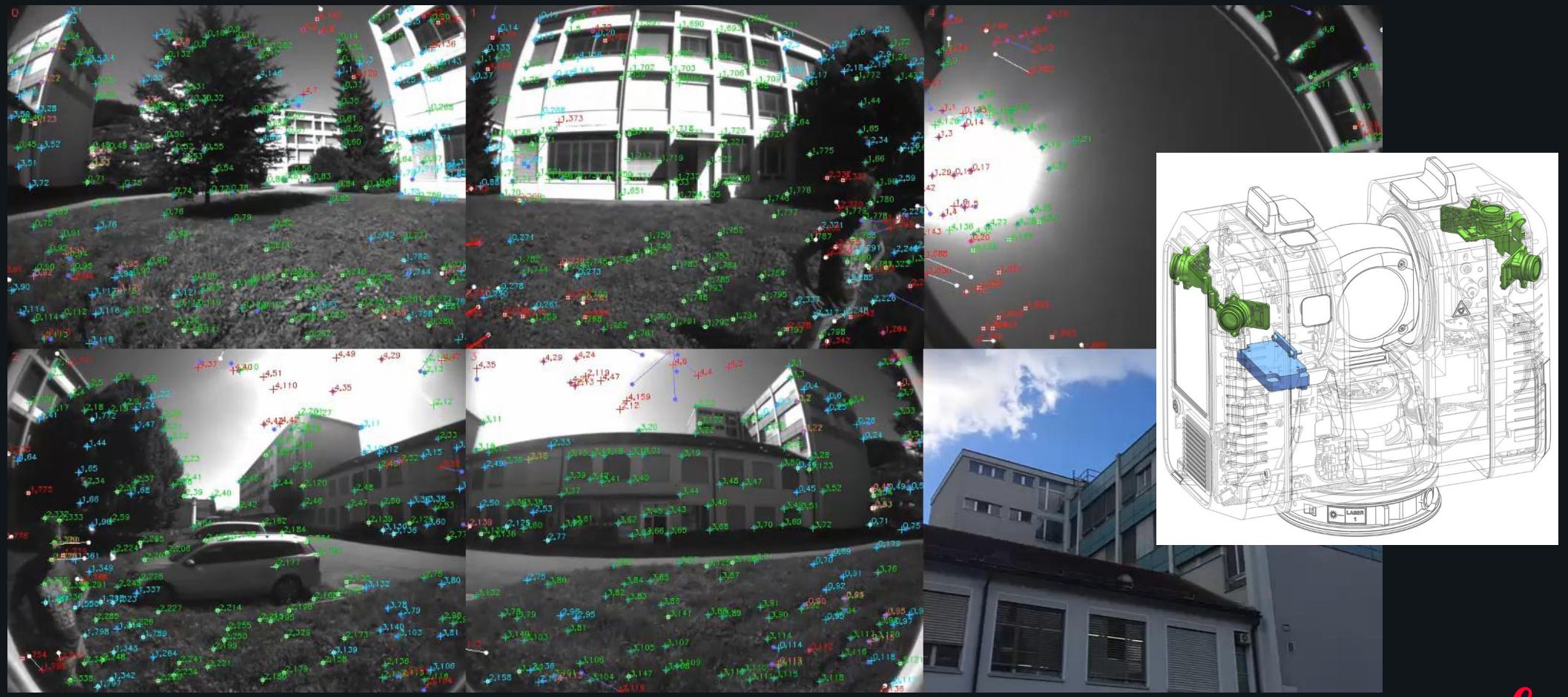
VIS - Visual Inertial System (YouTube)



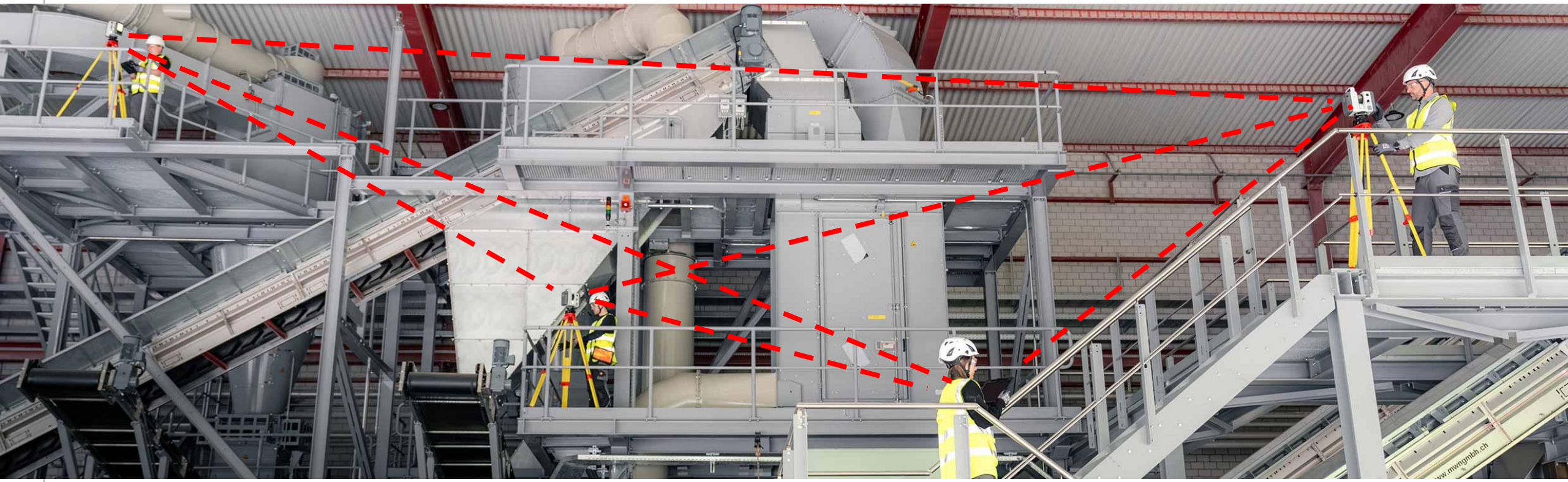


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VIS - Visual Inertial System (the reality)

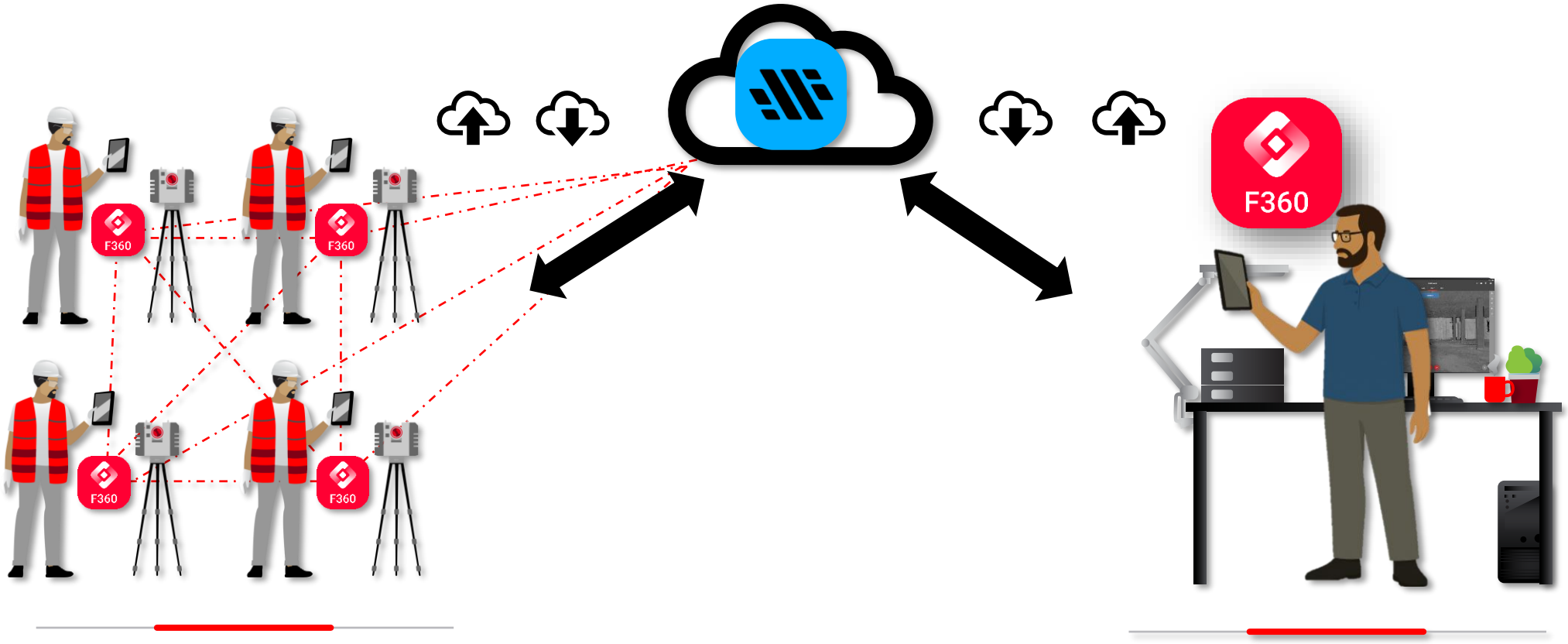


Livelink | Capture - Connect - Collaborate



Livelink | Capture - Connect - Collaborate | MULTI Units

Real-time interconnectivity between field and office and between field crew members, remote project coordination



Engineered for Real Sites, Not Ideal Conditions

Robustness and Reliability That Let You Focus on What Matters

- **Designed for harsh environments**
  Operates reliably across wide temperature, humidity, and dust/water exposure ranges (IP55, Operating Temperature -20 to +50)
- **Built for daily field use**
  Integrated handle, improved touchscreen & durable batteries, now with state of charge indicator.
- **Always connected, always secure**
  Robust wireless communication and **secure internal data storage** — no USB sticks, no data risk.
- **Metal housing, not plastic**
  All-metal construction for superior durability, impact resistance, and long-term reliability in industrial environments.



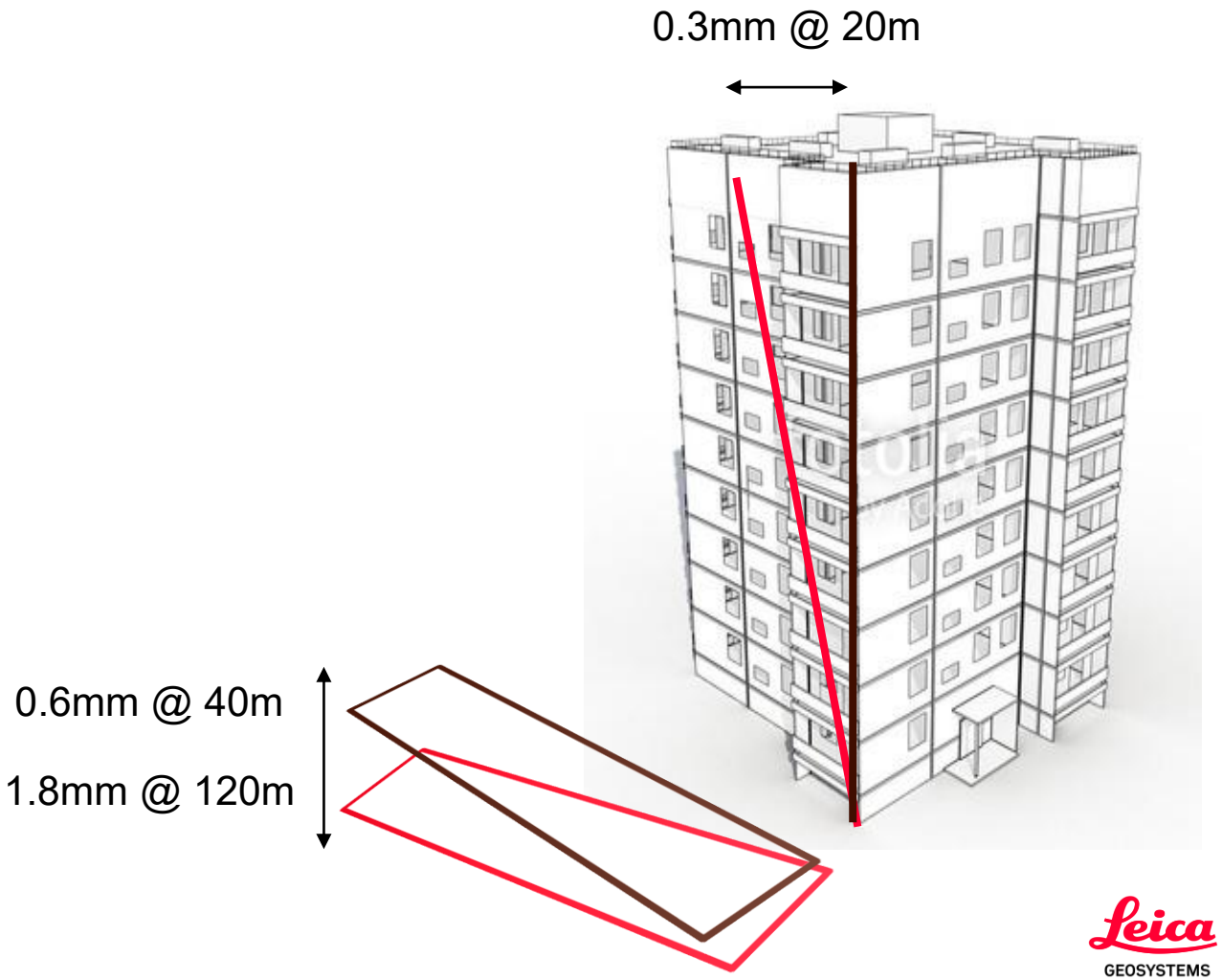


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Next-Generation Tilt Compensation

Freedom and Confidence Across the RTC Series

- **Guaranteed accuracy, automatically**
  3″ accuracy maintained without manual leveling.
- **Faster setup – without effort**
  Accurate scanning, even with setups tilted up to ±10° (compared to 1.5° of Pxx).
- **Zero workflow impact**
  Compensator calibration rotation is only done when needed, fully automatic.
- **Confidence in dynamic sites**
  Setup changes or external forces are detected and flagged instantly.



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Imaging System: **Doubling down** on what's working

Higher Efficiency, with Room to Grow

Two rows of frame cameras → same number of images, in half the time



Proven VIS-System: now in **RGB** to support image **preprocessing**

New cover glass & anti reflective coating

More processing done in the field
Auto exposure and auto white balance powered by RGB VIS cameras

Onboard HDR merging & tone mapping
No need to store 5x raw images anymore → drastic data size reduction

Less compression = better images

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LASER
1

When It Has To Be Right

Most Accurate Scanner In Its Class

The new **Leica RTC** is designed to be the **most accurate and reliable solution in its class:**

- **Survey-grade 3D accuracy and ultra-low range noise** for clean, reliable point clouds.
- **High angular and tilt accuracy** over a wide working range ensures consistent geometry at every setup.
- **Automatic in-field self-calibration** guarantees peak accuracy without manual intervention.

Model	Angular Accuracy	3D Accuracy
Leica RTC700/500/300	10"	**1,5 mm @ 10 m**

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Automatic Self-Calibration: Unconditional Peace of Mind

Trusted Accuracy Without Interruption



- **In field:** calibration parameters might change due rapid temperature change, temperature cycles, strong handling, shock,…
- **Guaranteed Precision:** Continuous self-calibration ensures the scanner consistently operates within peak specifications
- **No additional effort, full peace of mind:** Zero workflow impact, calibration runs autonomously in the background without interrupting field operations or requiring manual input.
- **Environmentally Adaptive:** The system intelligently monitors environmental conditions triggering self-calibration only when required. Uses flat surfaces in different distances and elevation angles to calculate and adjust the calibration parameters. This is done by a 2-face measurement
- **Rapid and Discrete:** In-field calibration is performed via a 13-second low-resolution scan and processed instantly onboard.

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Max Range

Our Main Feature – Improved Even Further

- **Full speed** (2 Mio pts/sec), also at **full range** due to **ambiguity** resolution (4 pulses in the air at the same time)
- **Longer max range** at high resolution, for all models (85m/130m/270m vs. 65m of RTC360)
- New & improved optics and EDM module + tried & tested **double-pulse** technology
  → **Sensitivity & cleanliness** on par with Pxx **High-Sensitivity** mode
- Possibility to capture **dedicated area & target scans**



Scan Rate/Resolution & Dual Pulse (4Mhz)

Full speed (2 Mio pts/sec), also at **full range** due to **ambiguity** resolution (4 pulses in the air at the same time)

New & improved optics and EDM module + tried & tested **double-pulse** technology



Scan with most scanners



Scanning with RTC

SCAN RESOLUTION @10m	RTC300 + HDR	RTC500 + HDR	RTC700 + HDR
25 mm	56s	43s	43s
12 mm	1min21s	56s	56s
6 mm	2min 12s	1min 21s	1min 21s
3 mm	3min 54s	2min 12s	2min 12s
1.6 mm			7min 18s
0.8 mm			Area Scan

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Area Scan

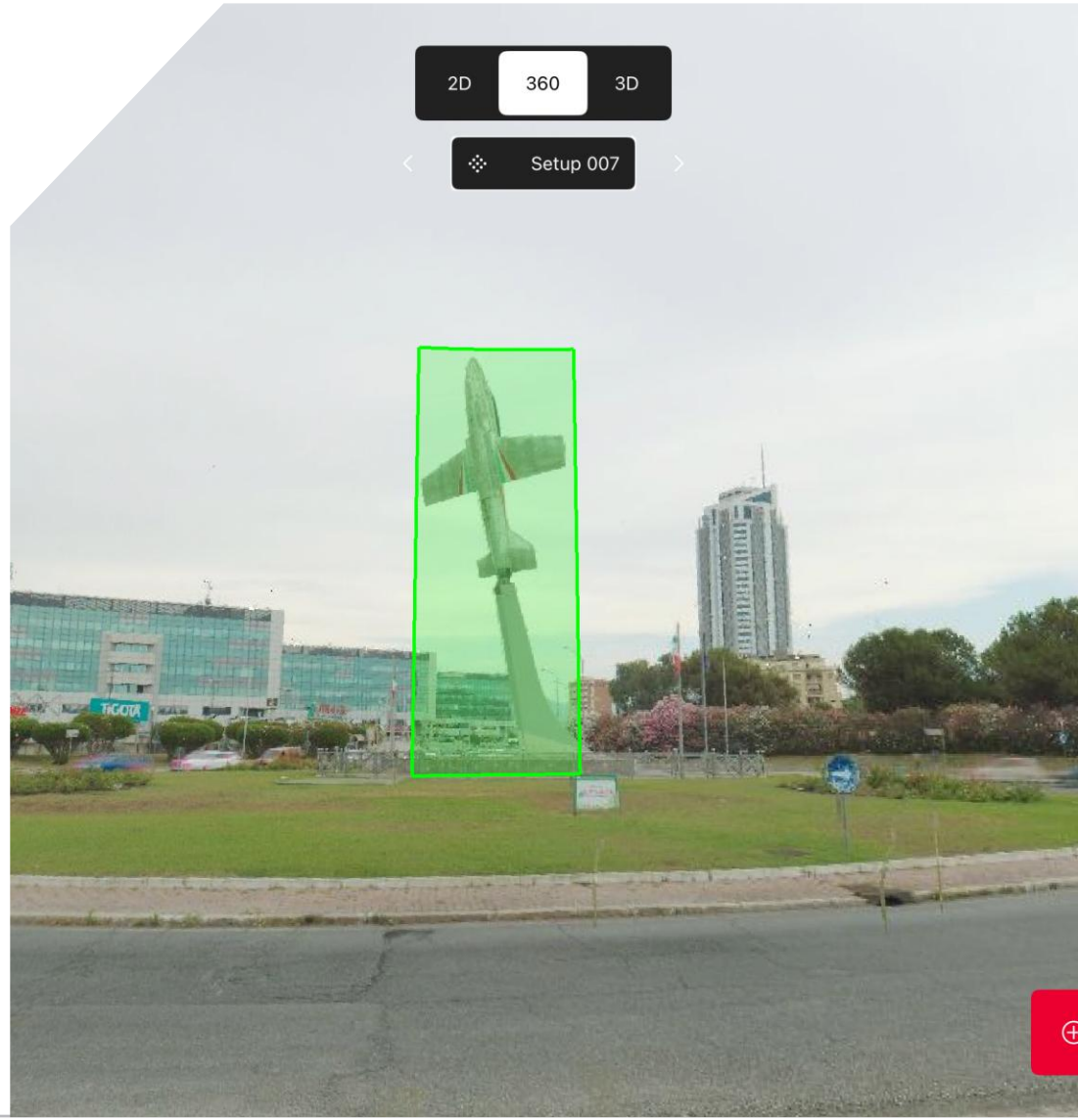
Exclusive access to **0.8 mm @ 10 m** resolution for ultra-detailed

Area Scans

- Capture detailed scan data within selected areas
- Combine full dome scans with detailed scans
- Managed and reviewed directly in FIELD 360
- Instant data validation

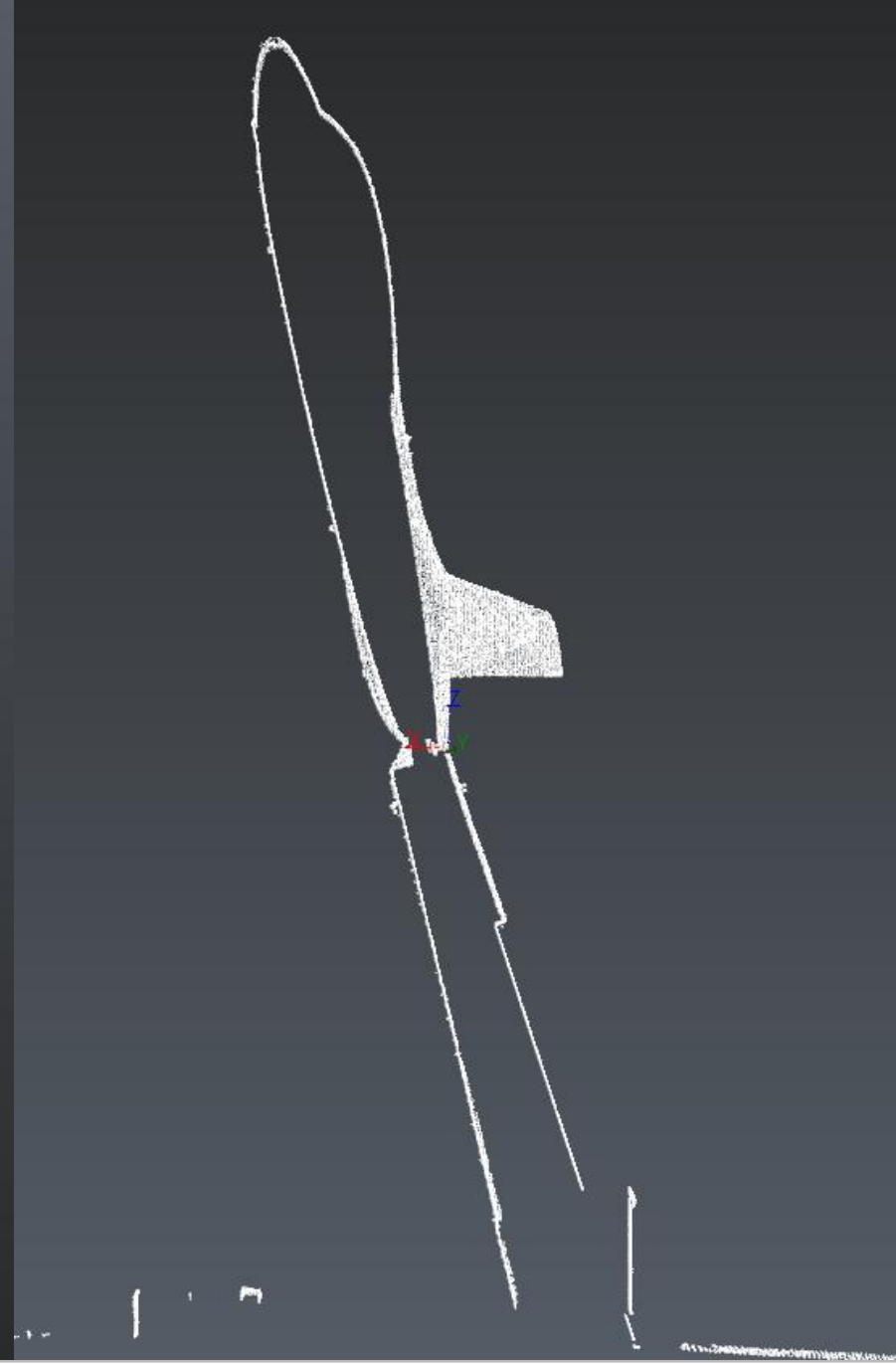
Benefits:

- Focus on important areas with higher details
- Optimized data capture, less unnecessary data
- Improved data quality in critical zones
- Reduced field time









Surveying workflows (Partial / Full)

Surveying functionalities (Partial)

Cloud-to-Cloud
- Min 2 Setups
- Bundle adjustment suggested

Targets
- Target ID (in field)
- Target extaction from point cloud (based by density)
- Scan aligned by targets in field

Georeferencing
- Import Control point
- Control point assignment
- Min 3 Control Points



Leica RTC 500

Leica RTC 300

Surveying functionalities (full)

Traverse:
- BS/FS targets
- Traverse link

Setup over a known point

Area Scan
- Rectangle drawing
- Resolution settings

Target scan
- Up to 75 m

Improved target picking
- Scanner frame camera image



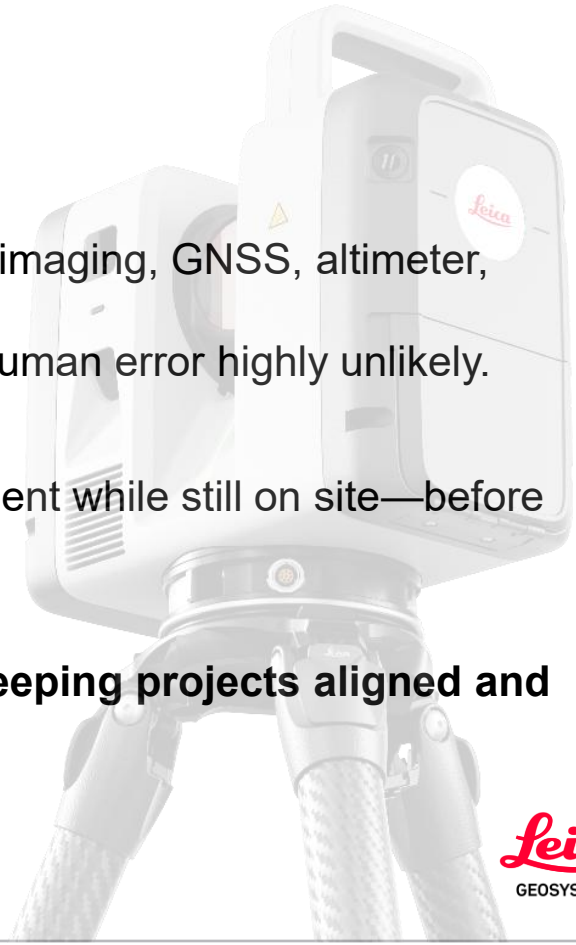
Leica RTC 700

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RTC Series

Scans with less mistakes

- **Ease to use**
  Designed so **operator can learn quickly**
- **Automation that prevents mistakes**
  Built-in intelligence works continuously in the background:
  tilt compensation, IMU, automatic self-calibration, VIS-based alignment, automatic HDR imaging, GNSS, altimeter, and shock detection.
  The system automatically adapts to orientation, movement, and environment—making human error highly unlikely.
- **Real-time quality control in the field**
  Immediate data inspection in **Cyclone FIELD 360** ensures coverage, quality, and alignment while still on site—before leaving the job.
- **Coordinated field-to-office workflows**
  The office can monitor progress, support decisions, and coordinate work in real time—**keeping projects aligned and under control**.



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Why choose it?

Long-term, trusted partnership built on continuous innovation.

- **Always up to date**
  Free firmware updates continuously enhance performance, features, and usability—your scanner keeps improving over time.
- **Future-proof investment**
  Built with the internal architecture to evolve alongside new workflows, standards, and market demands—without becoming obsolete.
- **More value, no extra cost**
  New capabilities are delivered through software updates, with **no hardware changes** and **no additional CAPEX**.
- **Confidence at purchase**
  You invest knowing the RTC platform is actively developed and supported for the long term.
- **Longer lifecycle, higher ROI**
  Your scanner gets better every year, extending its usable life and maximizing return on investment



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Reality Capture software – in the field, in the office, in the cloud

CLOUD

HEXAGON GeoCloud

CYE

OFFICE

R360

CYP

CloudWorx

M360

3DR

FIELD



CAPTURE

MANAGE

DELIVER

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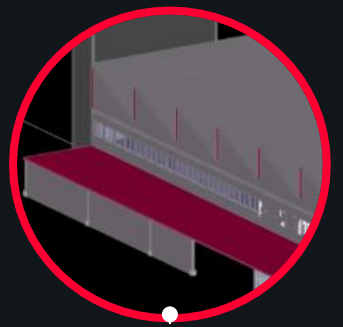
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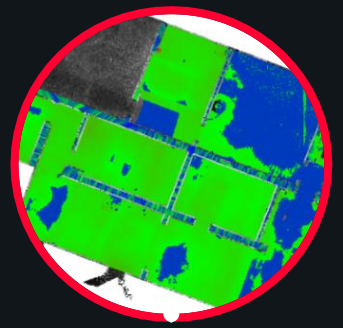
2D drawings



3D / BIM models

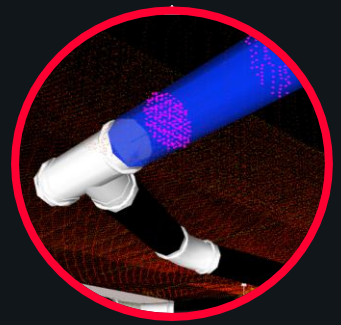


Deviation Analysis



Capture once use everywhere





Interference Analysis

LGSx

Sharing

Reality Cloud Studio



Monitoring Progress

Leica GEOSYSTEMS

Virtual Tour



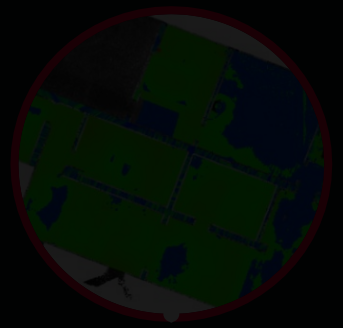
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3D / BIM models



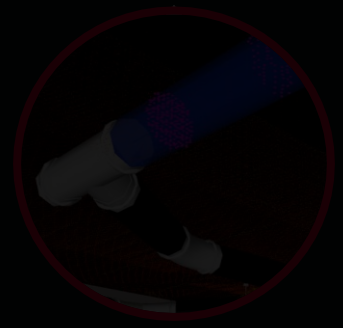
Deviation Analysis



Capture once



use everywhere



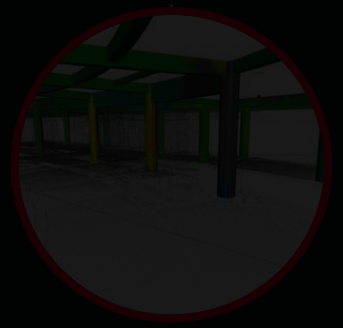
Interference Analysis



Sharing

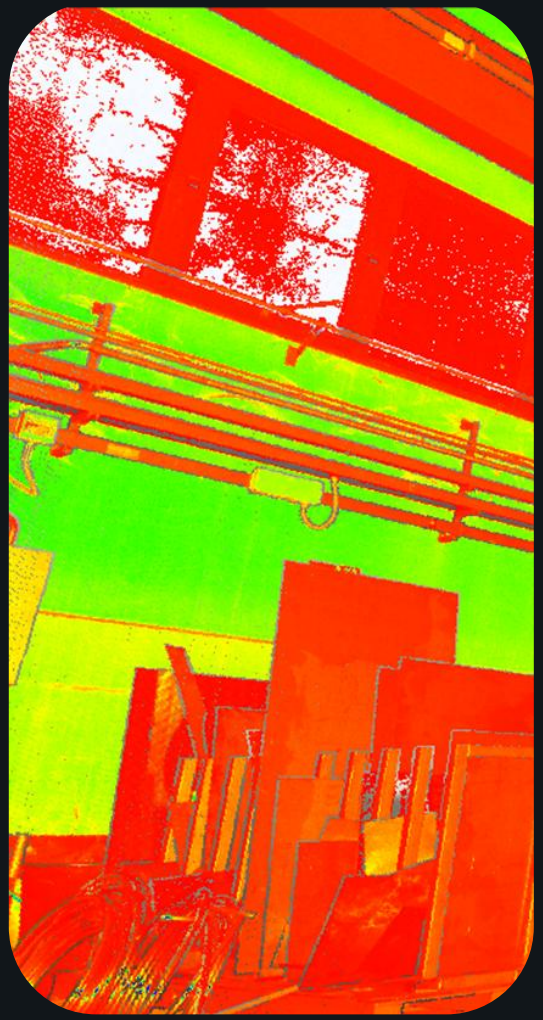


Reality Cloud Studio



Monitoring Progress

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Intensity Map
Multi-hue



Intensity Map
Gray Scale



True Colour

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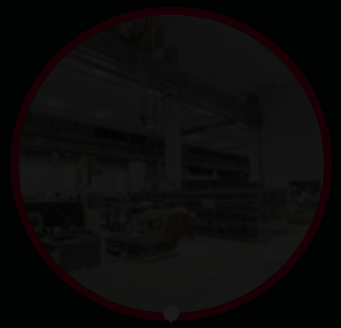


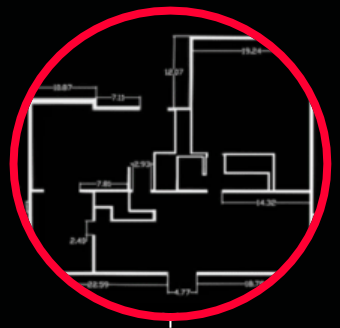
Virtual Tour

2D drawings

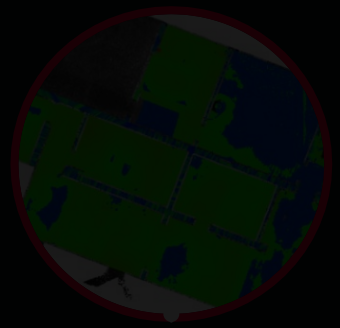
3D / BIM models

Deviation Analysis





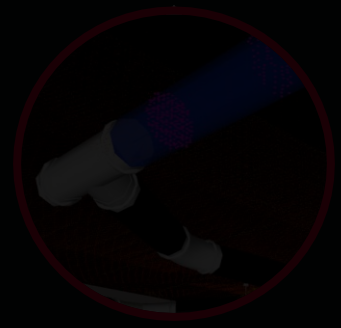




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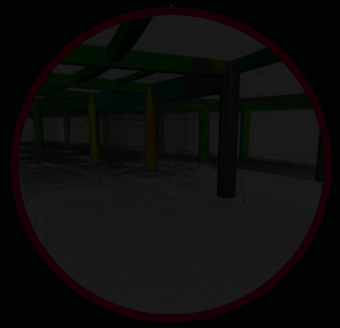
Interference Analysis



Sharing

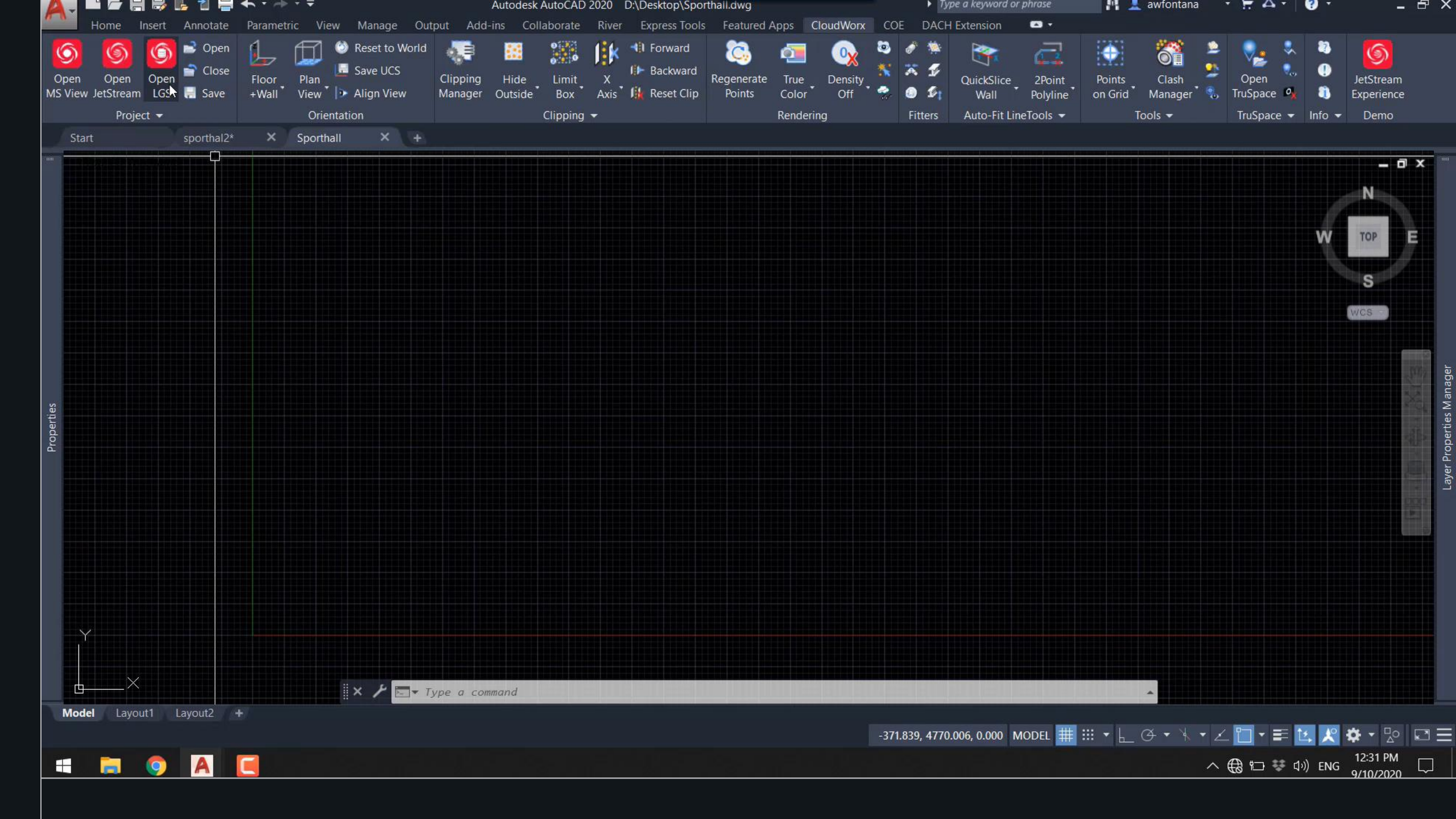


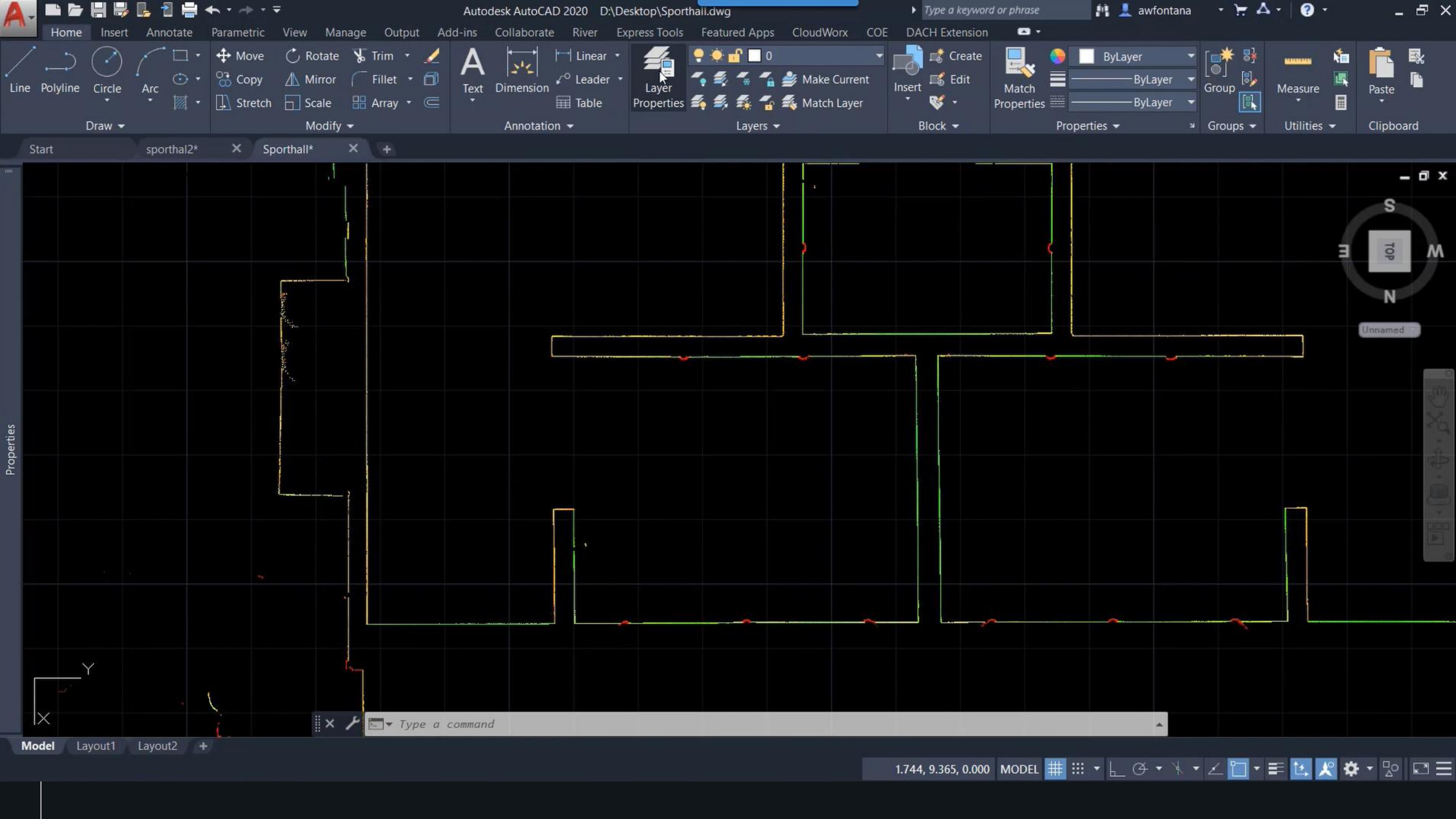
Reality Cloud Studio



Monitoring Progress

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Open MS View
Open JetStream
Open LGS
Open
Close
Save
Project
Floor +Wall
Plan View
Reset to World
Save UCS
Align View
Orientation
Clipping Manager
Hide Outside
Limit Box
X Axis
Forward
Backward
Reset Clip
Clipping
Regenerate Points
True Color
Density Off
Rendering
Fitters
QuickSlice Wall
2Point Polyline
Auto-Fit LineTools
Points on Grid
Clash Manager
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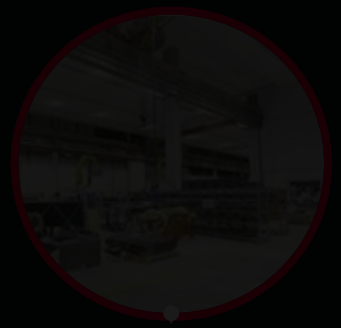

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Type a keyword or phrase
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Home Insert Annotate Parametric View Manage Output Add-ins Collaborate River Express Tools Featured Apps CloudWorx COE DACH Extension
Line Polyline Circle Arc
Move Rotate Trim Copy Mirror Fillet Stretch Scale Array
Text Dimension Linear Leader Table
Layer Properties Make Current Match Layer
Insert Create Edit
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Virtual Tour

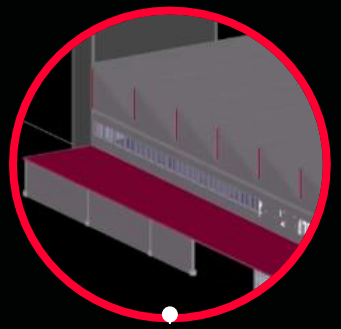
2D drawings

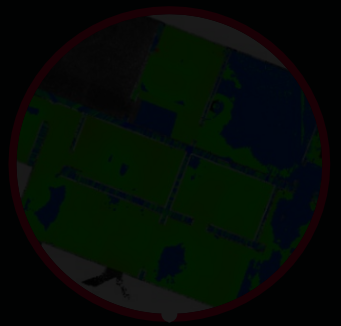
3D / BIM models

Deviation Analysis





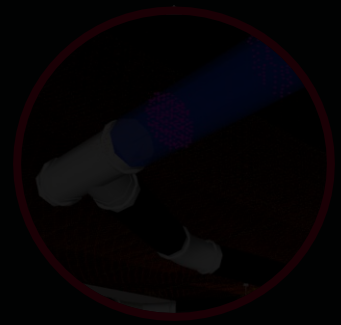




Capture once



use everywhere



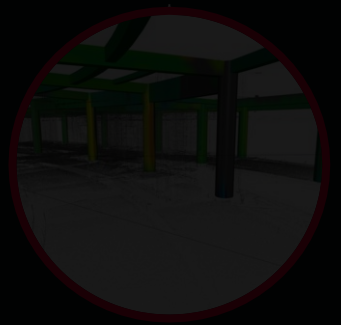
Interference Analysis



Sharing

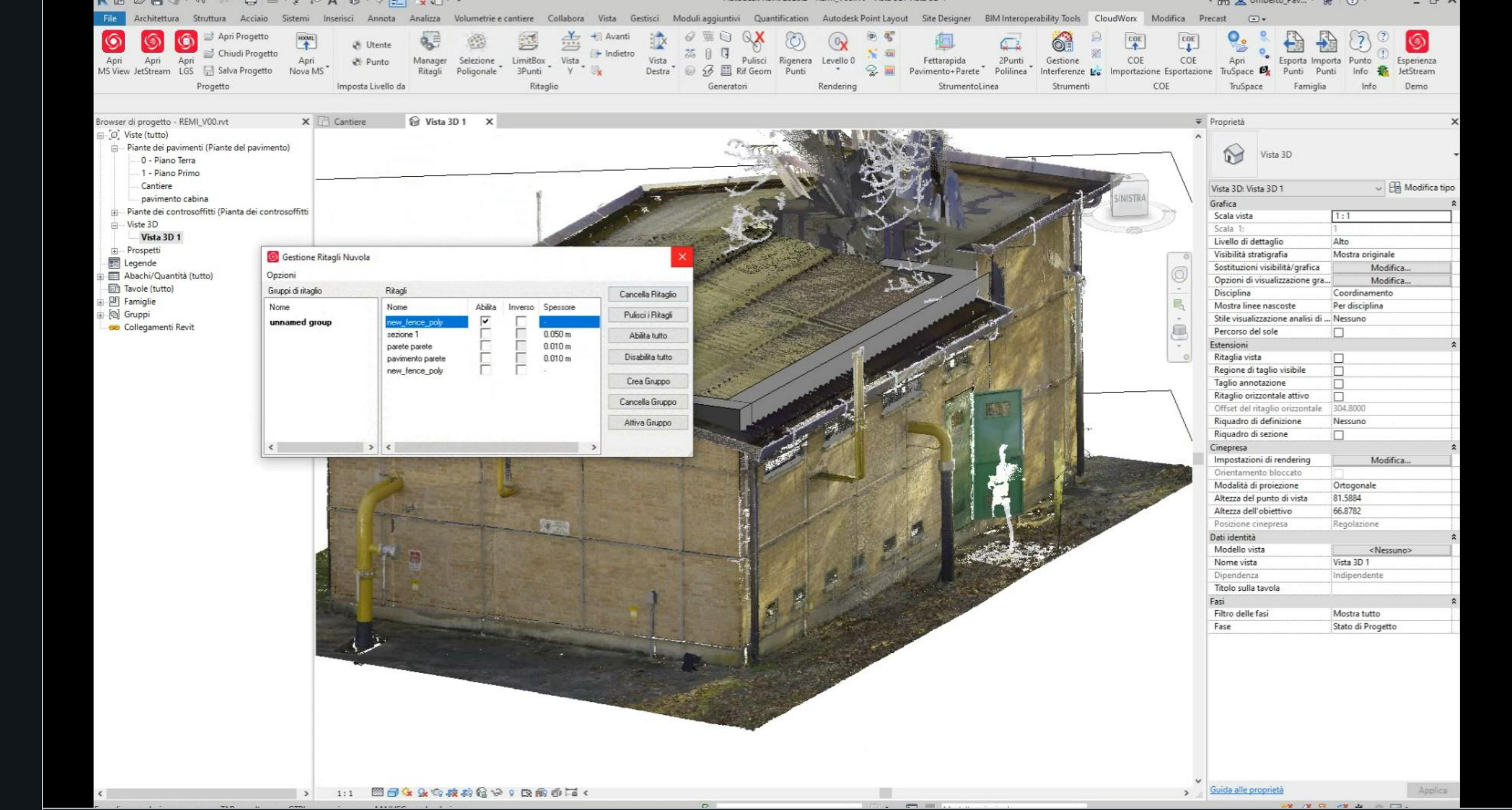


Reality Cloud Studio



Monitoring Progress

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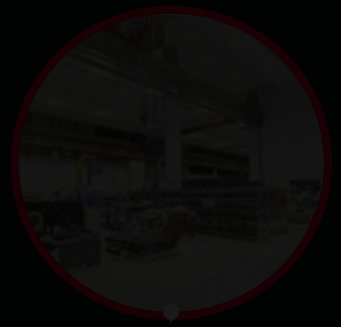

File
Architettura
Struttura
Acciaio
Sistemi
Inserisci
Annota
Analizza
Volumetrie e cantiere
Collabora
Vista
Gestisci
Moduli aggiuntivi
Quantification
Autodesk Point Layout
Site Designer
BIM Interoperability Tools
CloudWorx
Modifica
Precast
Apri MS View
Apri JetStream
Apri LGS
Apri Progetto
Chiudi Progetto
Salva Progetto
Apri Nova MS
Progetto
Utente
Punto
Imposta Livello da
Manager Ritagli
Selezione Poligonale
LimitBox 3Punti
Vista Y
Avanti
Indietro
Vista Destra
Pulisci Rif Geom
Ritaglio
Generatori
Rigenera Punti
Rendering
Livello 0
Fettarapida Pavimento+Parete
2Punti Polilinea
StrumentoLinea
Gestione Interferenze
Strumenti
COE Importazione
COE Esportazione
COE
Apri TruSpace
TruSpace
Esporta Punti
Importa Punti
Famiglia
Punto Info
Info
Esperienza JetStream
Demo
Browser di progetto - REMI_V00.rvt
Viste (tutto)
Piante dei pavimenti (Piante del pavimento)
0 - Piano Terra
1 - Piano Primo
Cantiere
pavimento cabina
Piante dei controsoffitti (Pianta dei controsoffitti
Viste 3D
Vista 3D 1
Prospetti
Legende
Abachi/Quantità (tutto)
Tavole (tutto)
Famiglie
Gruppi
Collegamenti Revit
Cantiere
Vista 3D 1
Gestione Ritagli Nuvola
Opzioni
Gruppi di ritaglio
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Ritagli
Nome
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Inverso
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parete parete
0.010 m
pavimento parete
0.010 m
new_fence_poly
Cancella Ritaglio
Pulisci i Ritagli
Abilita tutto
Disabilita tutto
Crea Gruppo
Cancella Gruppo
Attiva Gruppo
SINISTRA
Proprietà
Vista 3D
Vista 3D: Vista 3D 1
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Grafica
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Livello di dettaglio
Alto
Visibilità stratigrafia
Mostra originale
Sostituzioni visibilità/grafica
Modifica...
Opzioni di visualizzazione gra...
Modifica...
Disciplina
Coordinamento
Mostra linee nascoste
Per disciplina
Stile visualizzazione analisi di ...
Nessuno
Percorso del sole
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<Nessuno>
Nome vista
Vista 3D 1
Dipendenza
Indipendente
Titolo sulla tavola
Fasi
Filtro delle fasi
Mostra tutto
Fase
Stato di Progetto
Guida alle proprietà
Applica
1 : 1

Virtual Tour

2D drawings

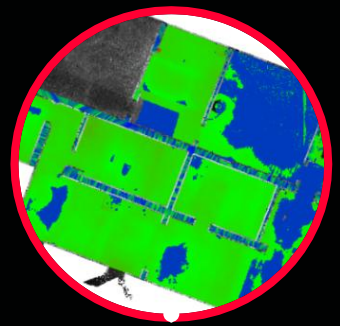
3D / BIM models

Deviation Analysis





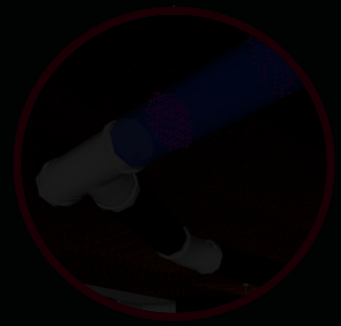




Capture once



use everywhere



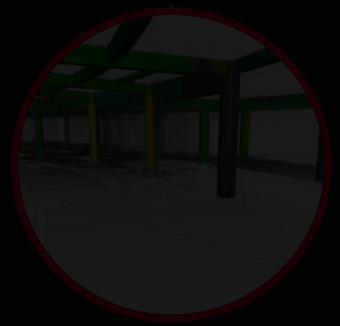
Interference Analysis



Sharing

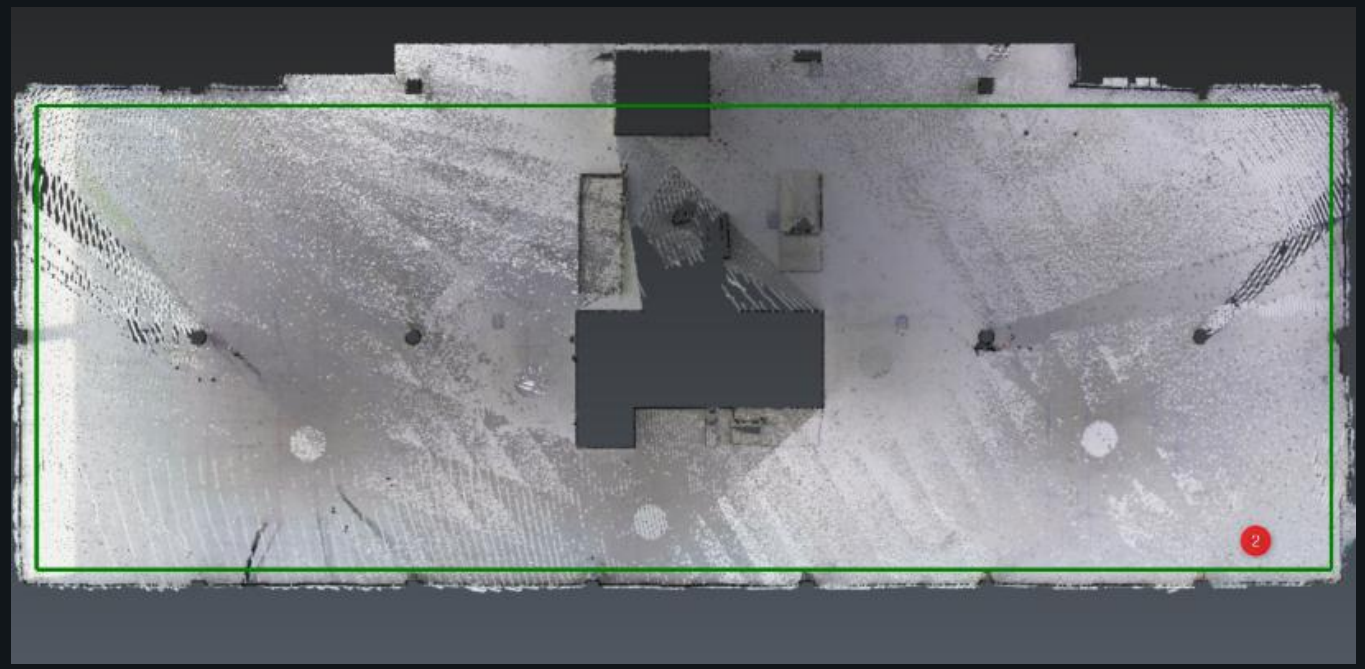


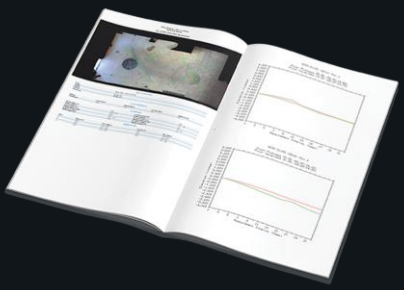
Reality Cloud Studio



Monitoring Progress

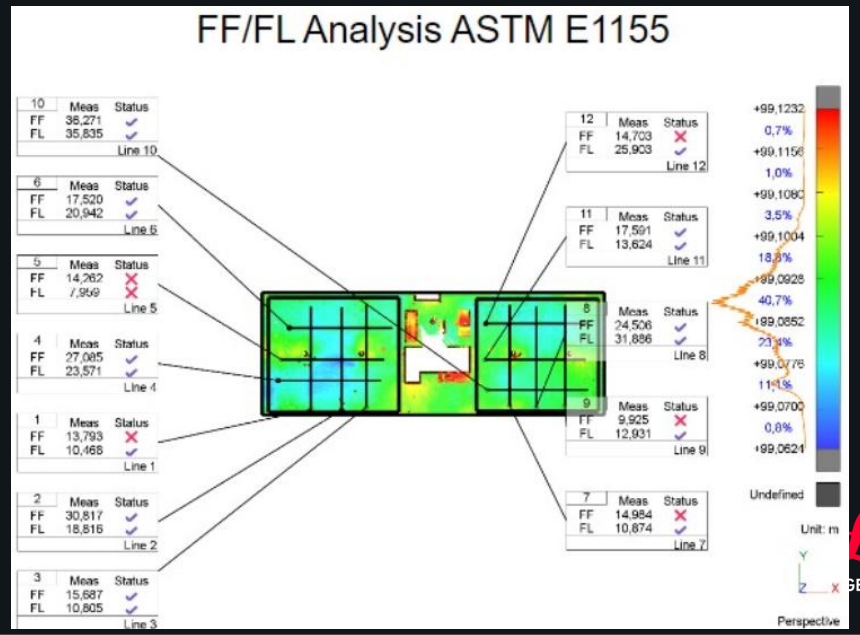
Leica GEOSYSTEMS



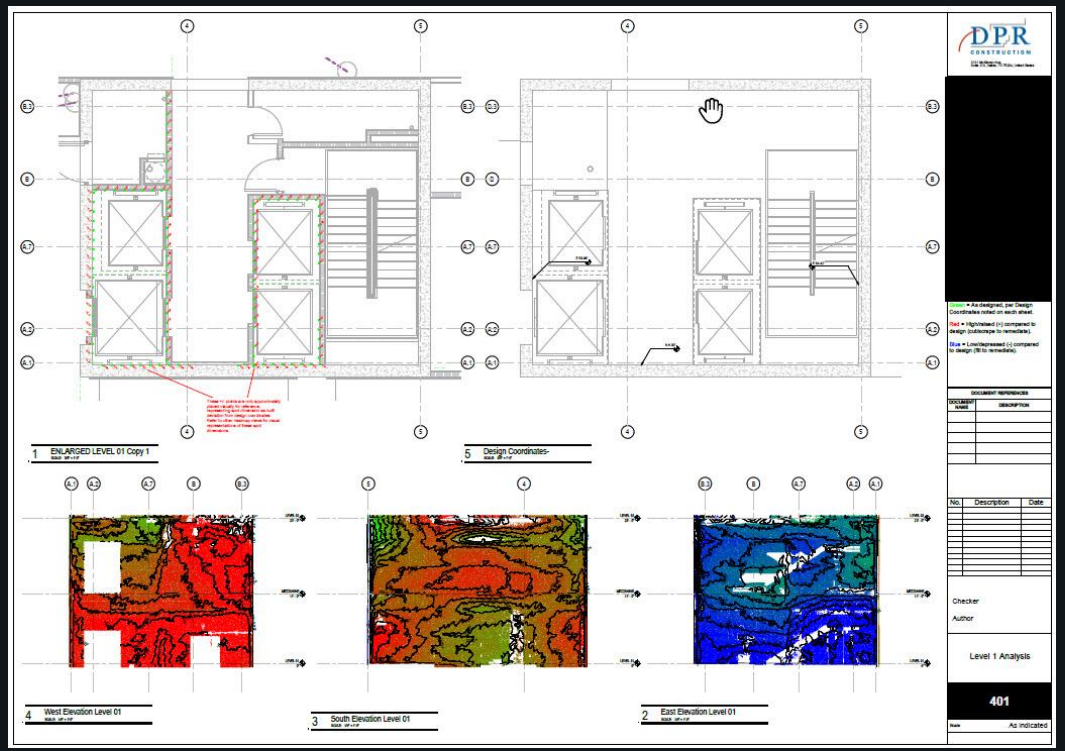


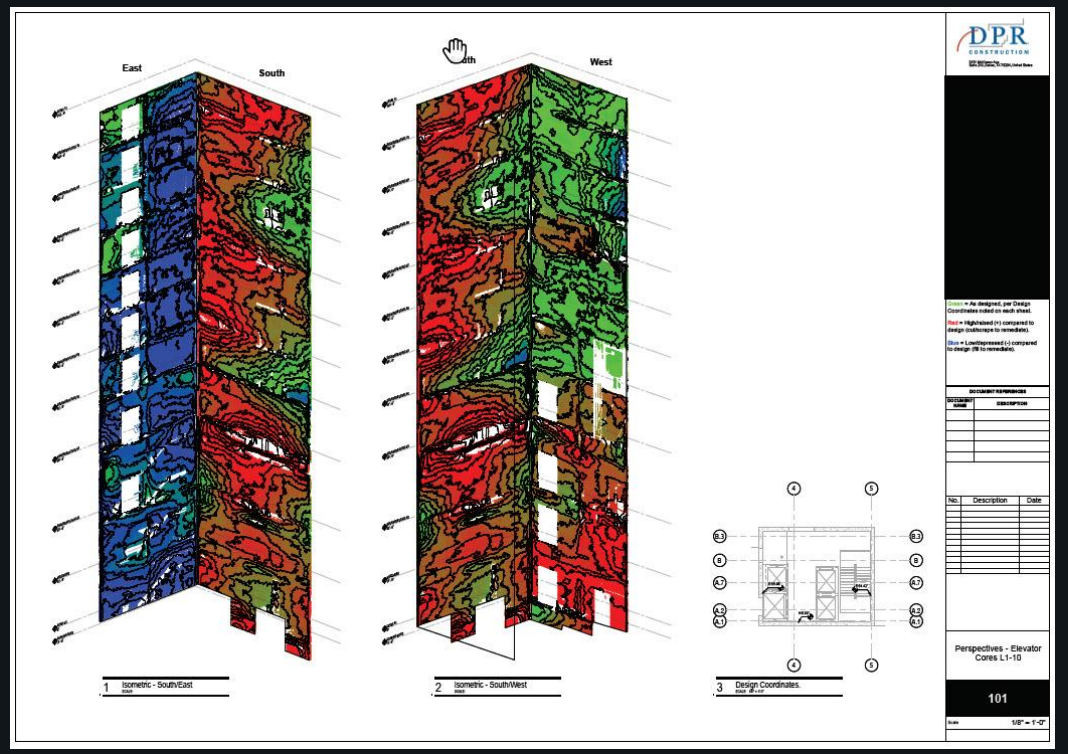
ASTM
E1155





Leica GEOSYSTEMS





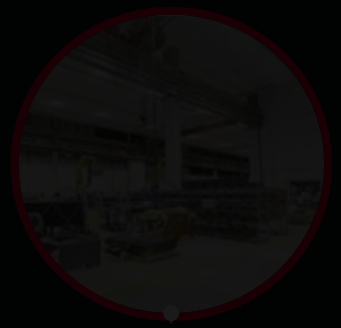
Leica GEOSYSTEMS

Virtual Tour

2D drawings

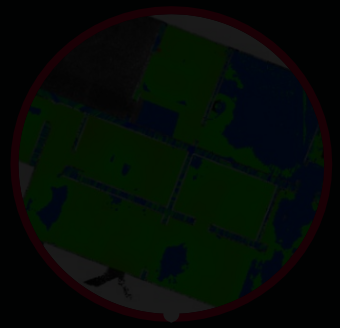
3D / BIM models

Deviation Analysis









Capture once



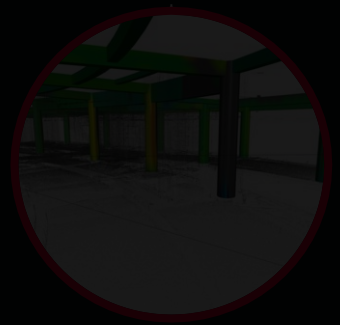
use everywhere



Interference Analysis

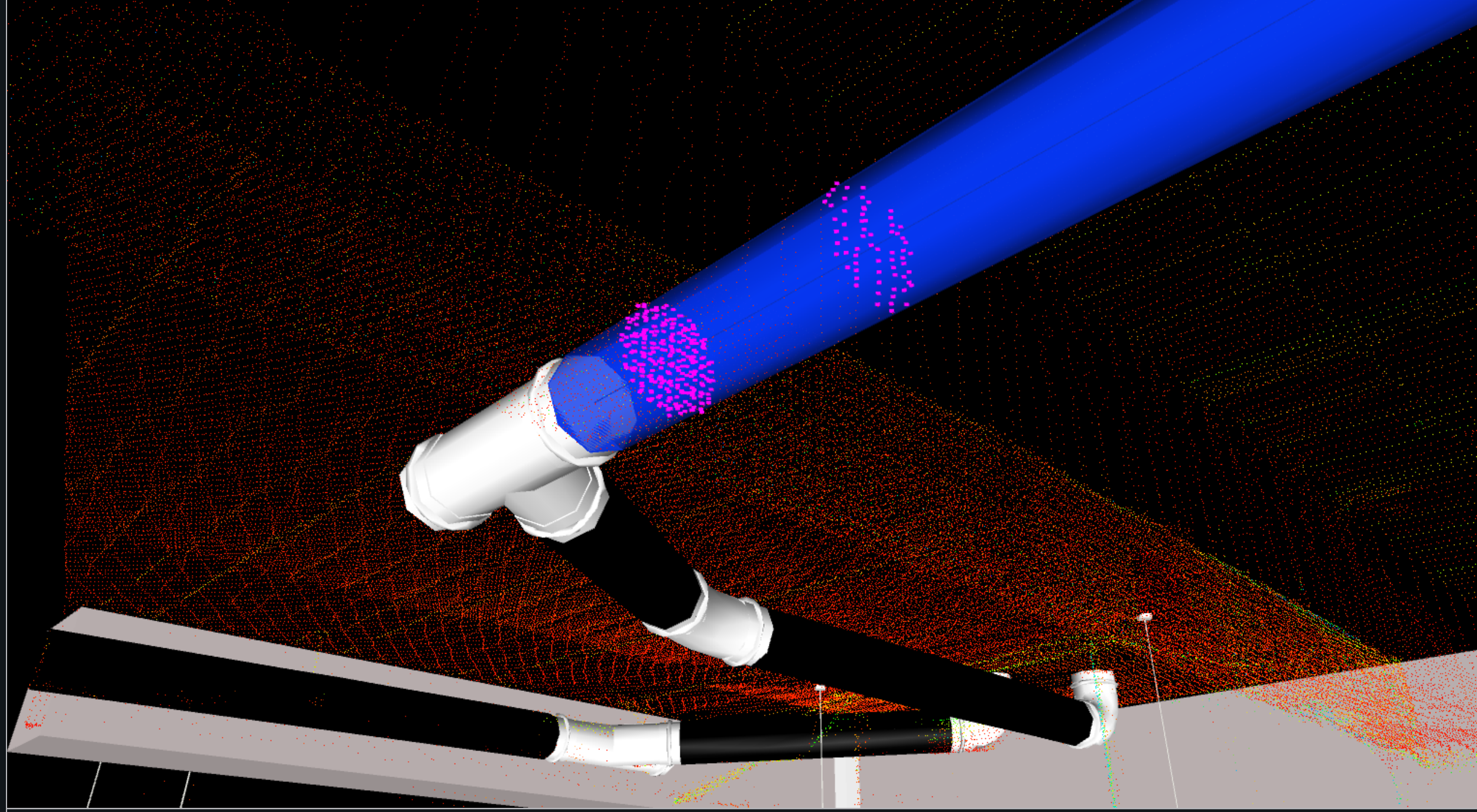
Sharing

Reality Cloud Studio



Monitoring Progress

Leica GEOSYSTEMS

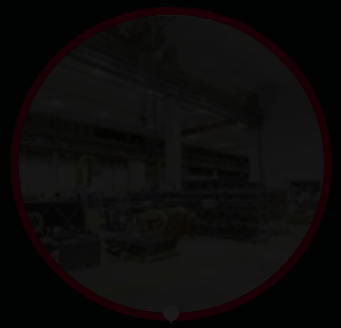


Virtual Tour

2D drawings

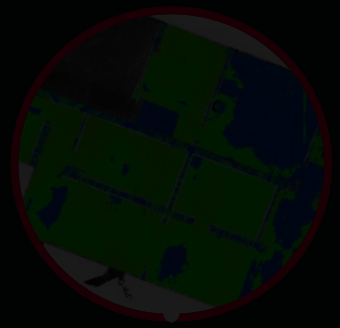
3D / BIM models

Deviation Analysis





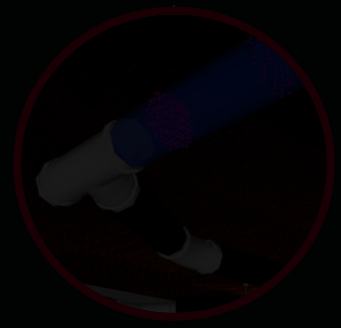




Capture once



use everywhere



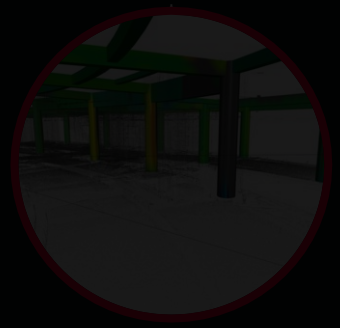
Interference Analysis



Sharing

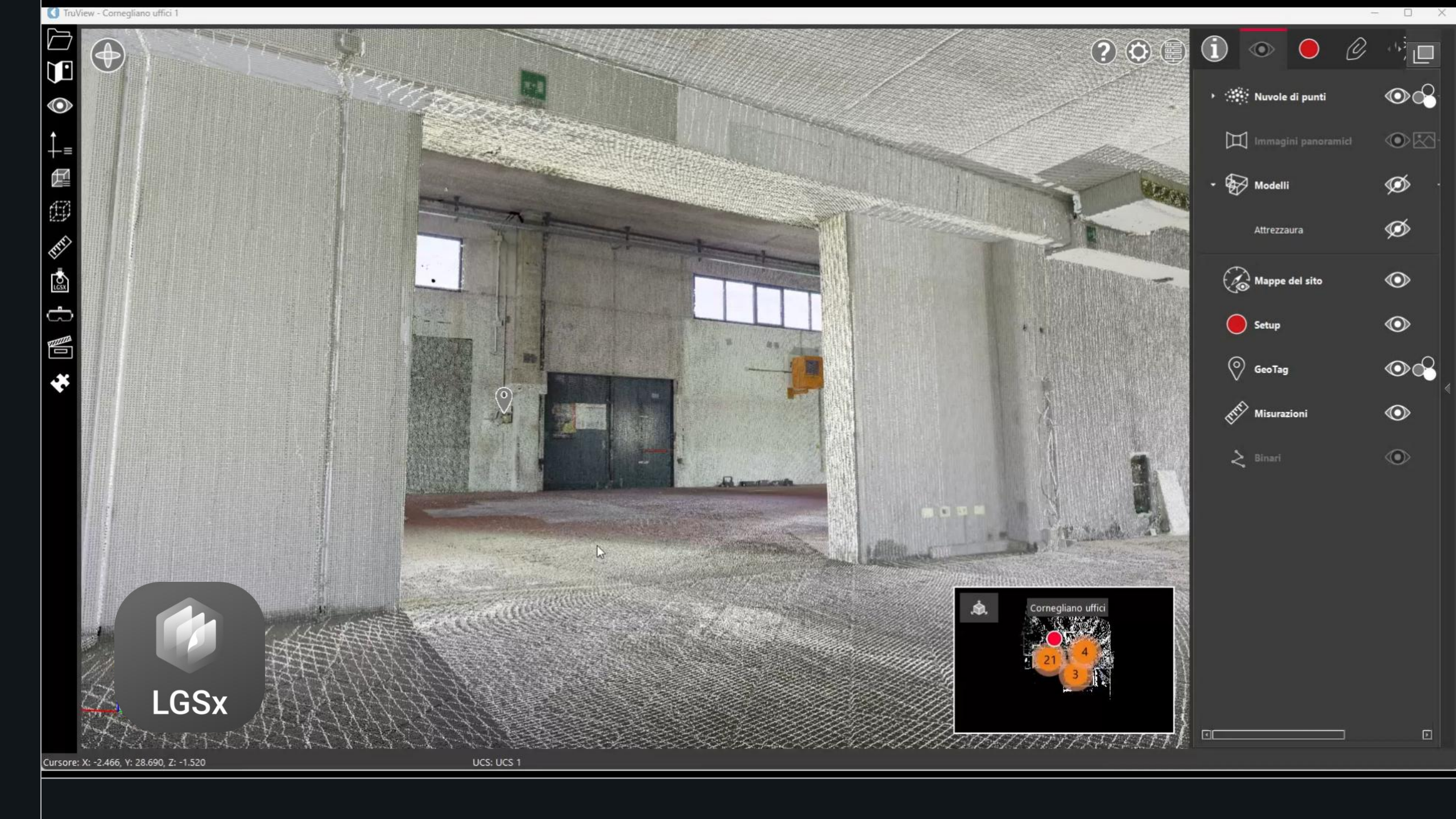


Reality Cloud Studio



Monitoring Progress

Leica GEOSYSTEMS

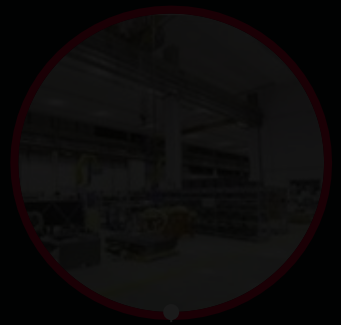

TruView - Cornegliano uffici 1
Nuvole di punti
Immagini panoramici
Modelli
Attrezzaura
Mappe del sito
Setup
GeoTag
Misurazioni
Binari
Cornegliano uffici
21
4
3
LGSx
Cursore: X: -2.466, Y: 28.690, Z: -1.520
UCS: UCS 1

Virtual Tour

2D drawings

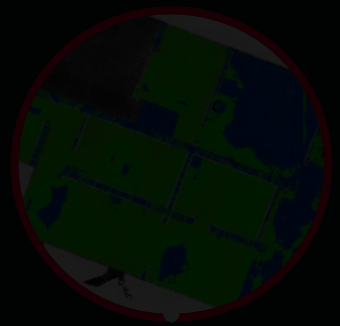
3D / BIM models

Deviation Analysis





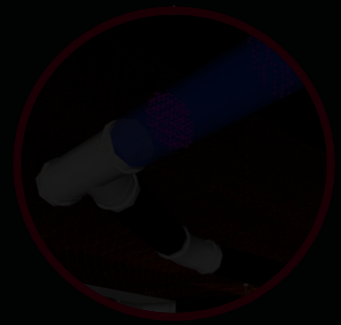




Capture once



use everywhere



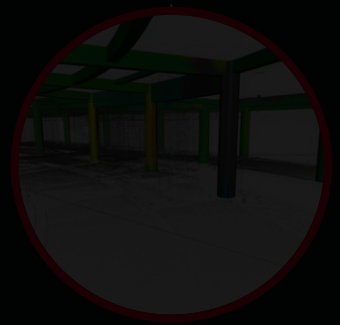
Interference Analysis



Sharing

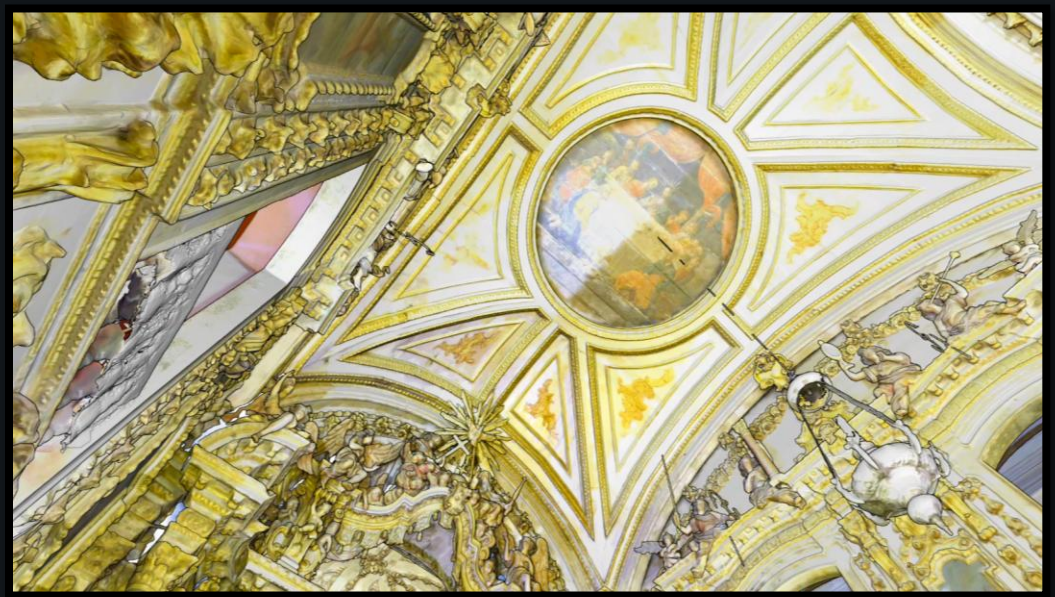


Reality Cloud Studio



Monitoring Progress

Leica GEOSYSTEMS

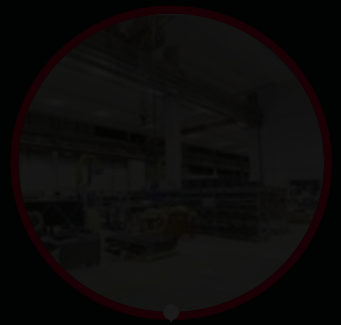



HEXAGON
GeoCloud


HEXAGON
GeoCloud


HEXAGON
GeoCloud

Virtual Tour



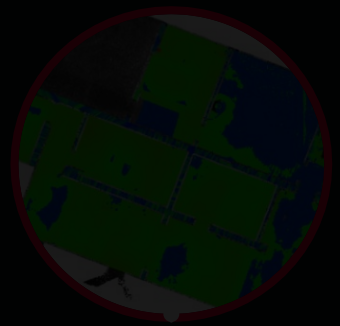
2D drawings



3D / BIM models



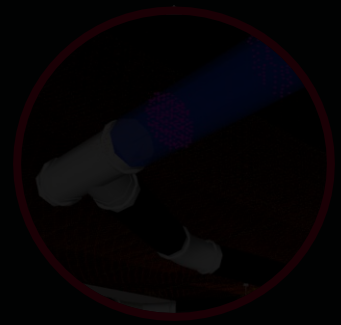
Deviation Analysis



Capture once



use everywhere

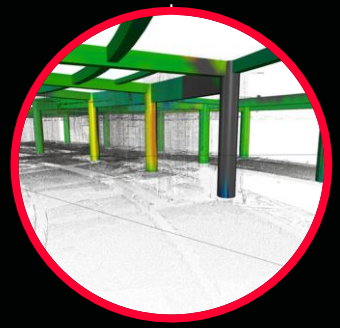


Interference Analysis

LGSx

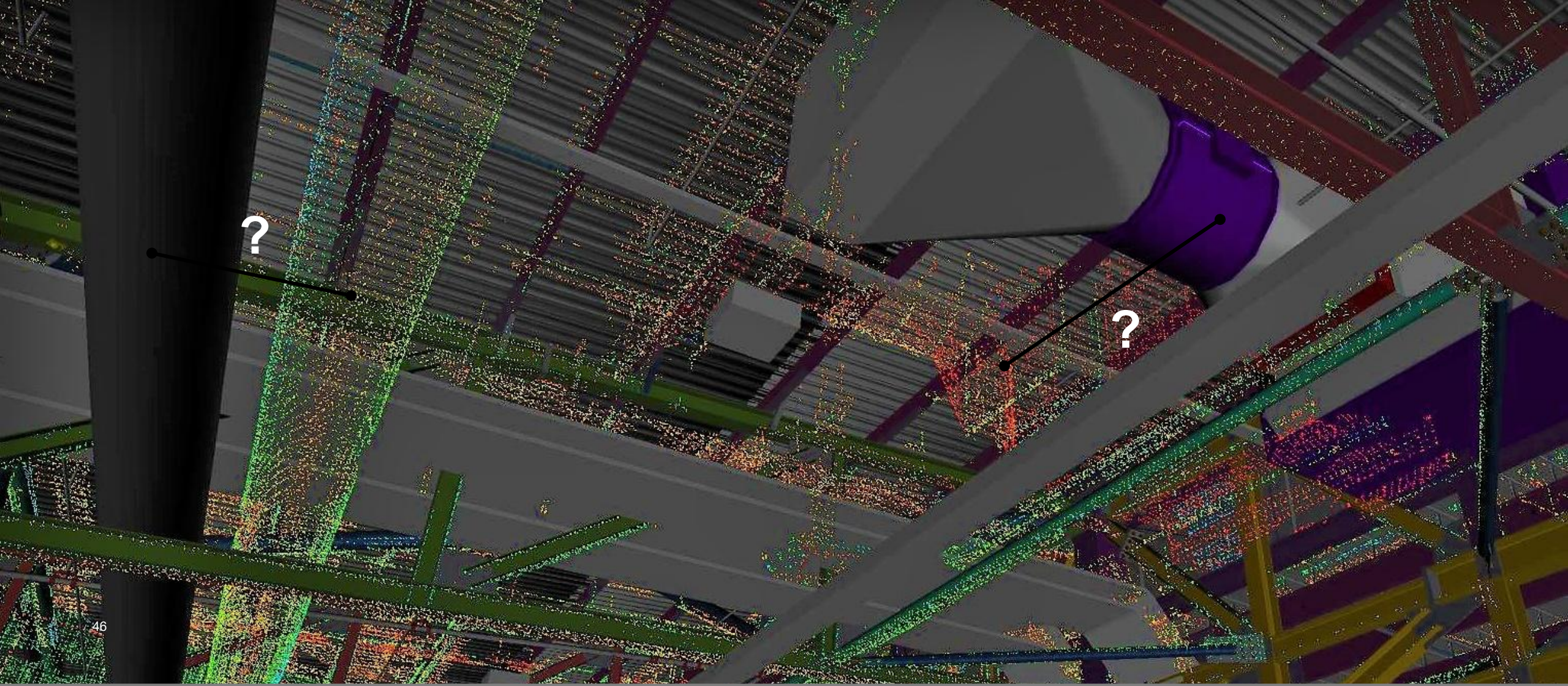
Sharing

Reality Cloud Studio



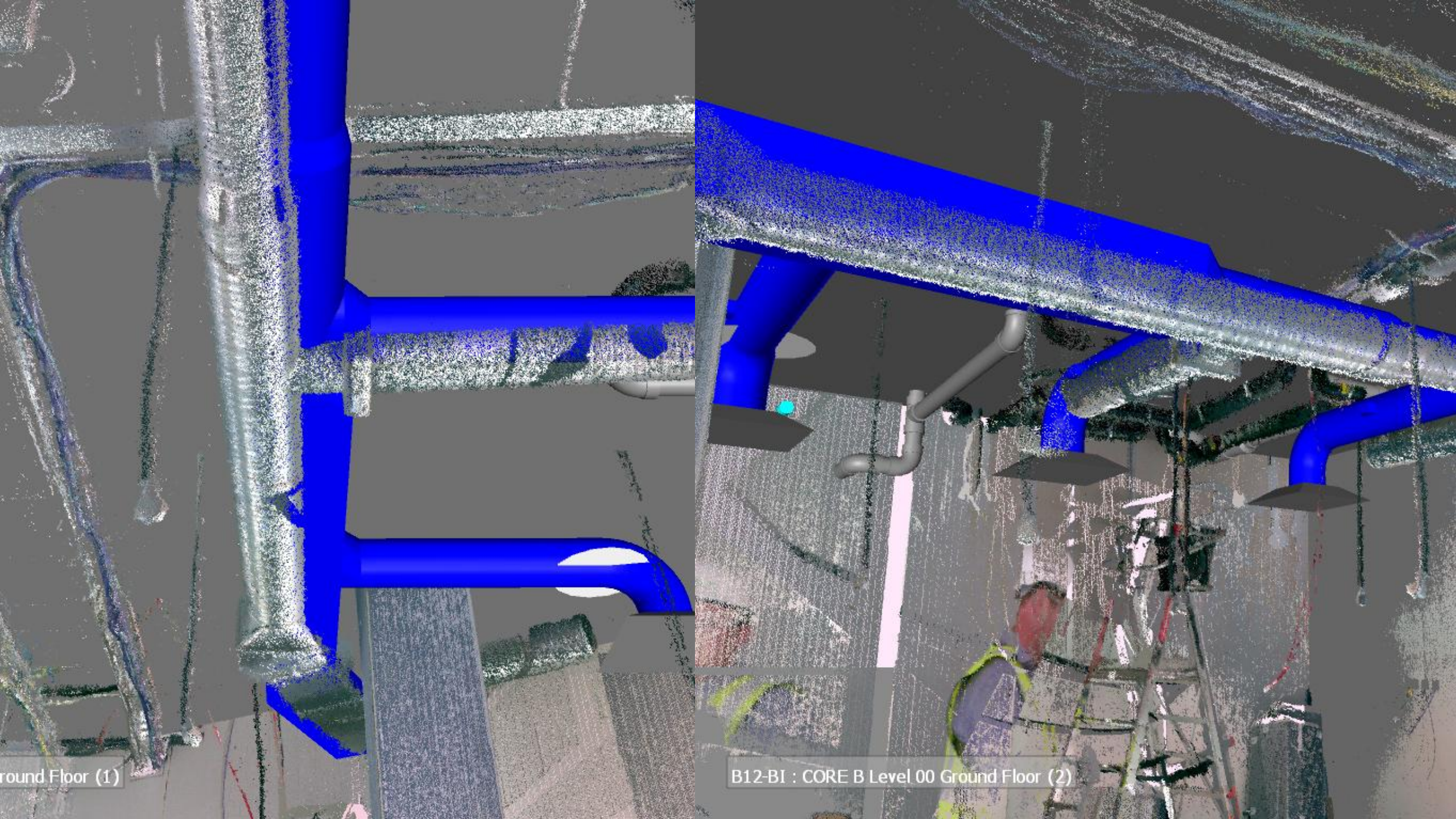
Monitoring Progress

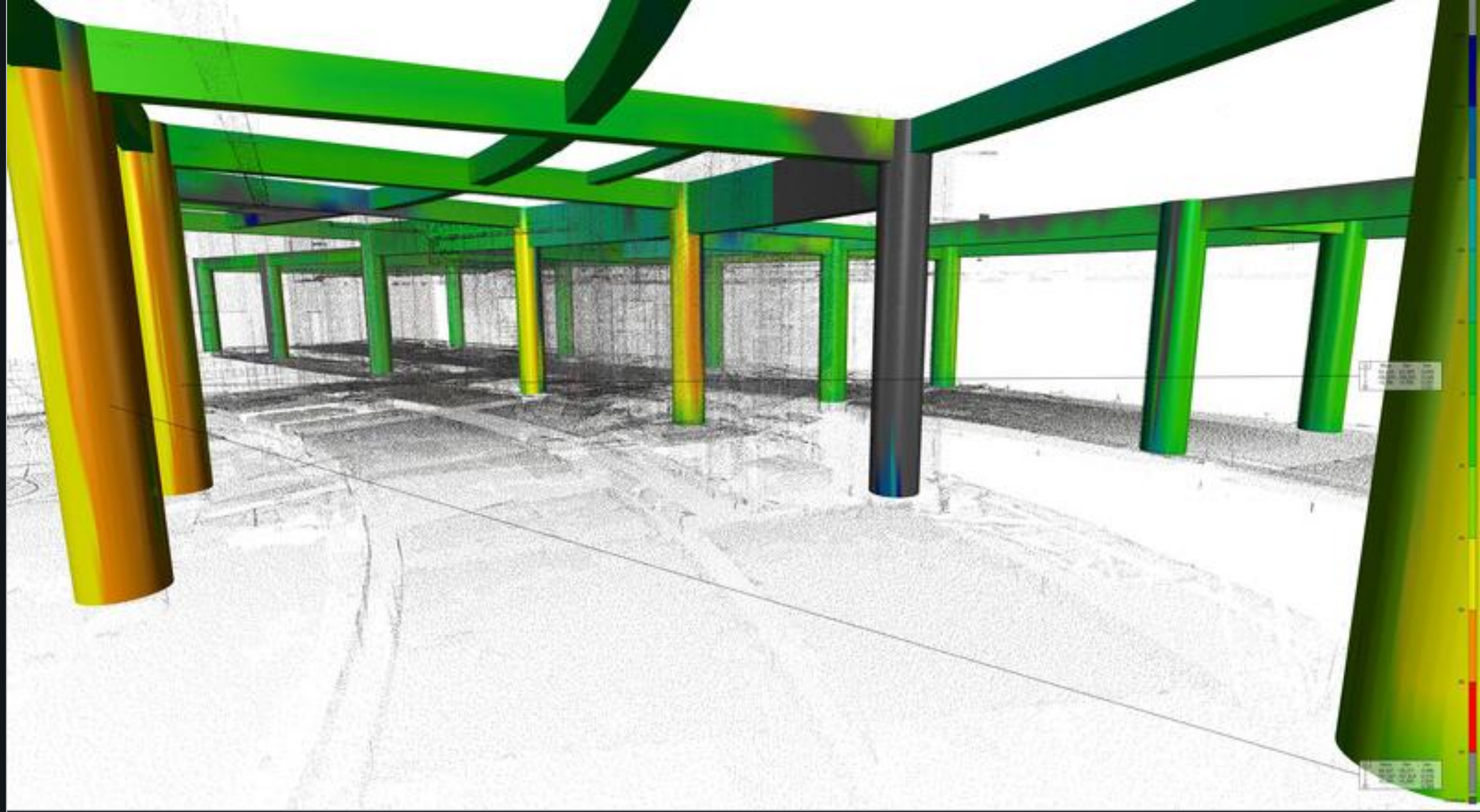
Leica GEOSYSTEMS

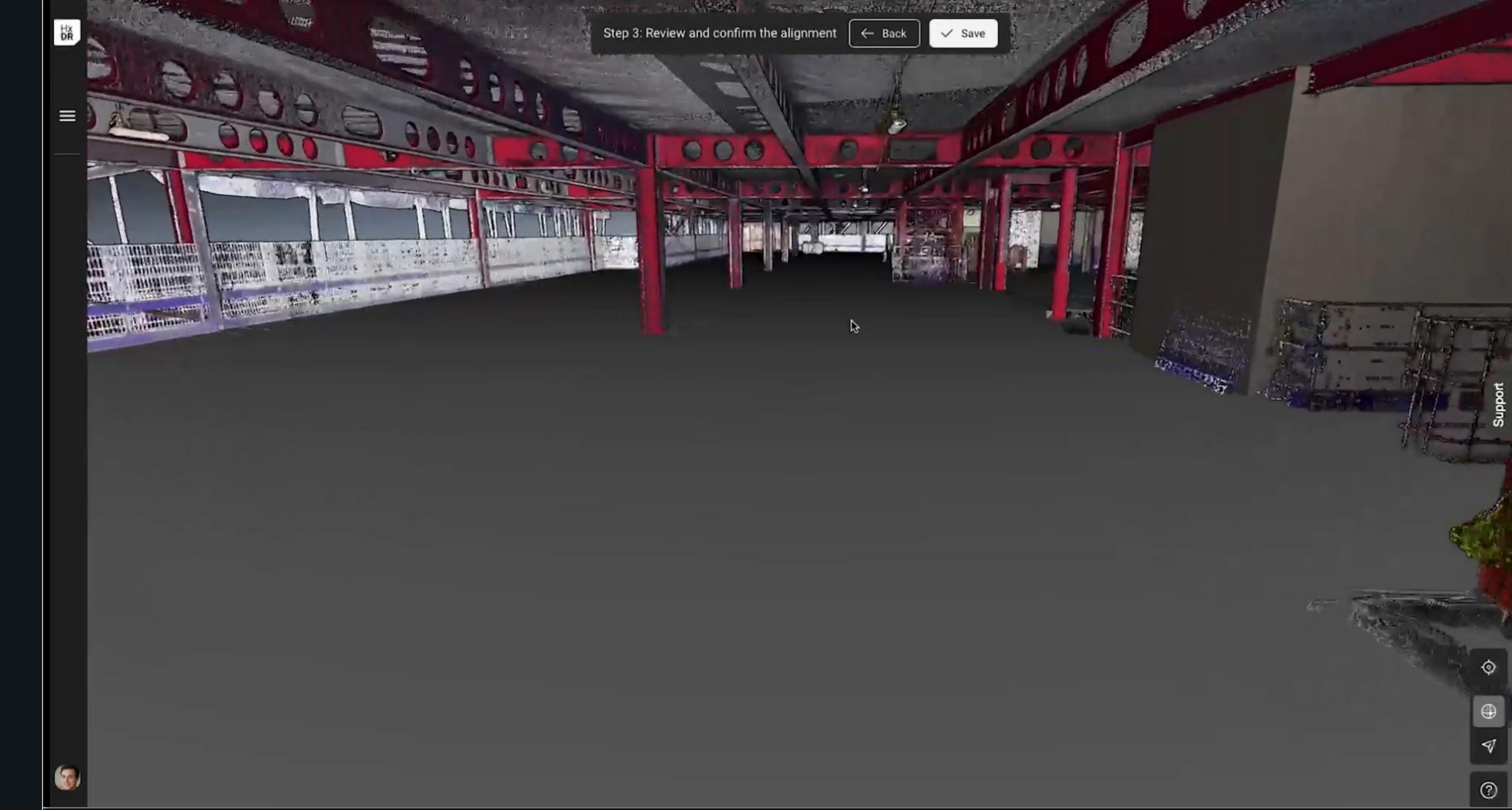


Built Verification

DF(-6)-35(5) : SSL (45)


round Floor (1)
B12-BI : CORE B Level 00 Ground Floor (2)




Step 3: Review and confirm the alignment
Back
Save
Support


AF_Comparativa* - Cyclone 3DR 2023.2 Dev [branch: master] build 23.4.99.44649
Home
View
CloudWorx
Coord Sys
Clean
Extract
Surface Modeling
Analysis
Texturing
Tank
Reverse Eng
Script
Debug
Sample
Report
Predefined Views
Lock view
Rotate
Align to Surface
Scan Locations
Camera
Quick Slice
Limit Slice
Limit Plane
Limit Box
Move Forward
Move Backward
Edit
Clipping
Save View
Viewport
2D Preview
Construct Grid
Edit Grid
Tool
Image Preview
Capture View
Camera
Image
Sync all
Sync target
Sync position
View sync
Dollhouse
Rendering
Clipping Group
Level 1
Level 2
Level 3
Coordinate System
WCS
BIM Group
BLOQUE 04
BLOQUE 04 walls and slabs
Building
Building_no walls
Building_no walls_top_level2
Cloud
Point cloud decimated 20cm
Point cloud_classified1.1
TESTS
PMv2
PM tests
Recycle bin
Representation
Smooth
Flat
Inspection
Real Color
Classification
Point size
Density
Transparency
Clipping
Level 1
Level 2
Level 3
[OPTIONNAL] Classified point cloud with
Indoor Construction Site

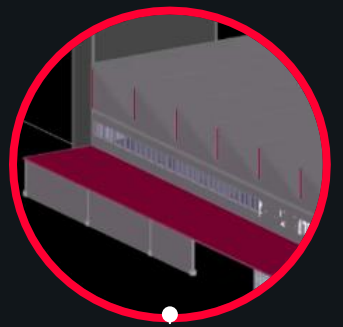
Virtual Tour



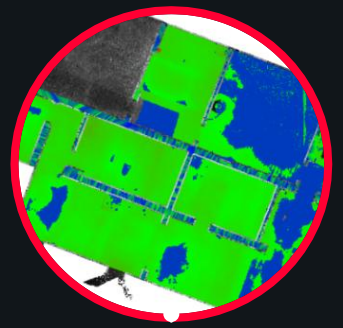
2D drawings



3D / BIM models

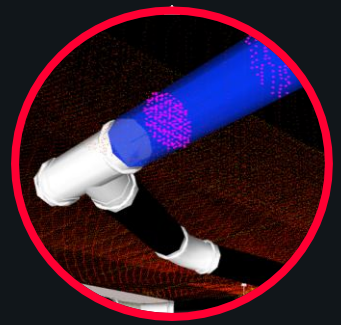


Deviation Analysis



Capture once use everywhere





Interference Analysis

LGSx

Sharing

Reality Cloud Studio



Monitoring Progress

Leica GEOSYSTEMS

Thank you

Leica GEOSYSTEMS

Visit us on the stand for a live demo