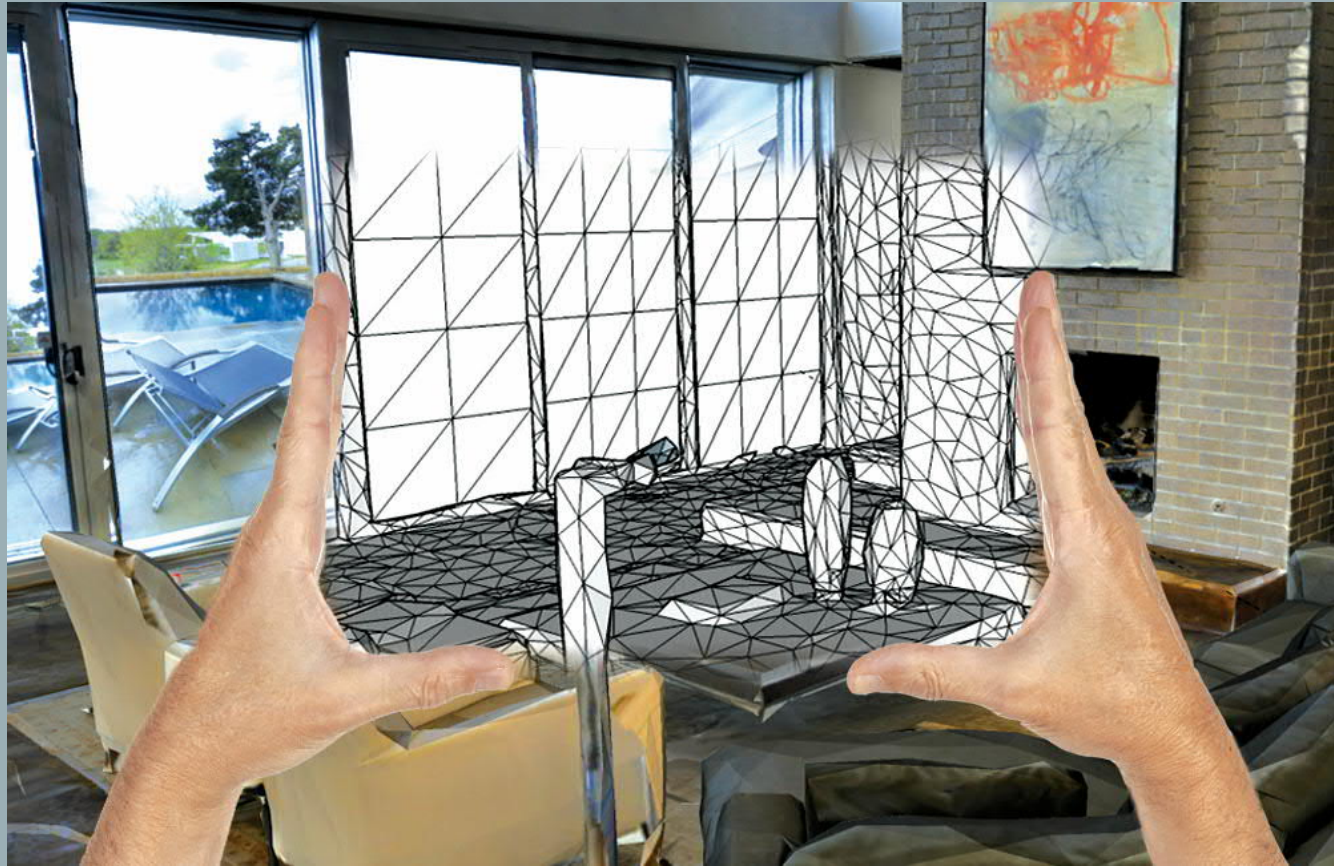


NEW TOOLS FOR 3D DATA CAPTURE

By Calum Bennett



3D VR SURVEYS

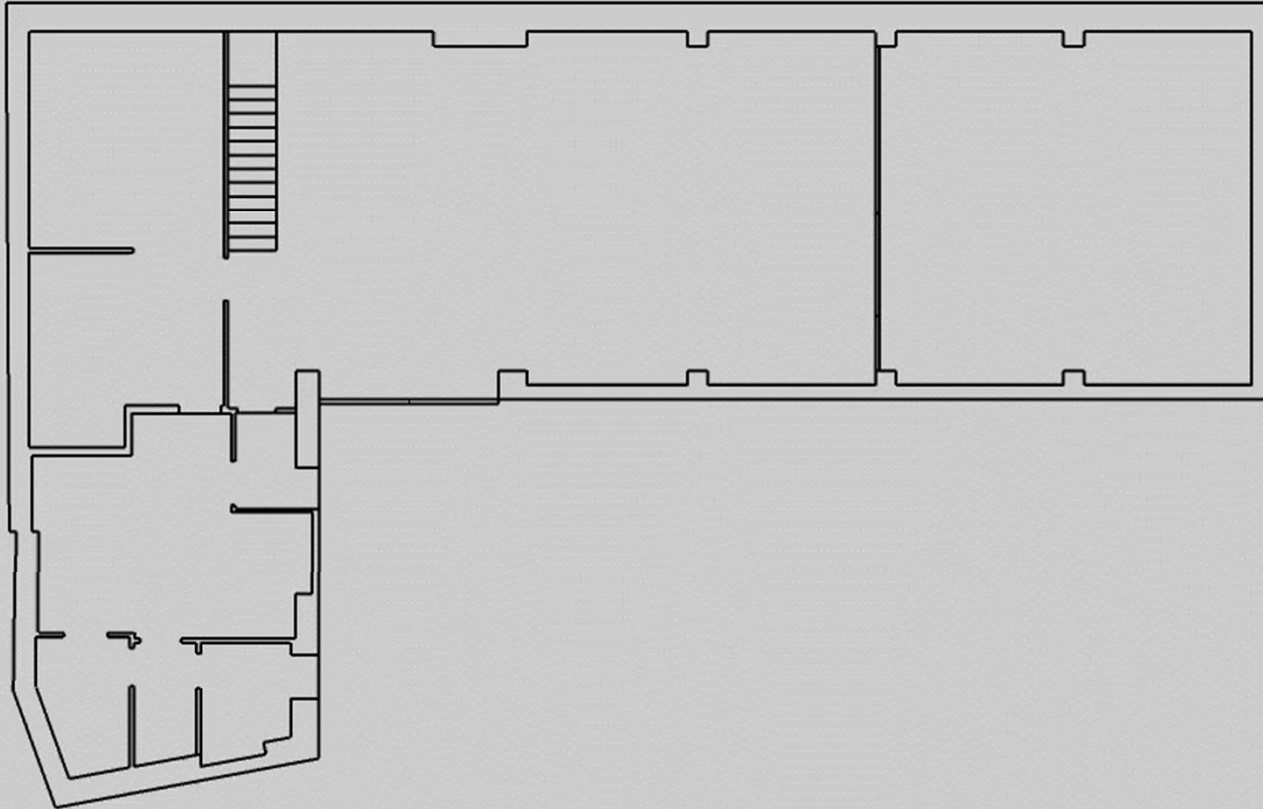


CALUM BENNETT
ENGINEERING

AGENDA

- Matterport & BLK360 – Affordable 3D Scanning Overview
 - The process, the usefulness, the cost!
- DIY Photogrammetry
 - Waving your phone around in the air to scan the world around you – Technology is closer to this than you might think!
- Accelerated Data Capture Software
 - Repetitive Surveying Software – What's on the market and making your own proforma in Excel!

PROLOGUE



MY FIRST SCAN



<https://www.youtube.com/watch?v=yxWVRjxHks4>

LOW COST 3D SCANNING OPTIONS

MATTERPORT



HIGH QUALITY
IMAGERY
SPEED OF CAPTURE
GOOD FOR INDOOR
SPACES
4-5M CEILING HEIGHT
1% ACCURACY

www.3dvrsurveys.co.uk

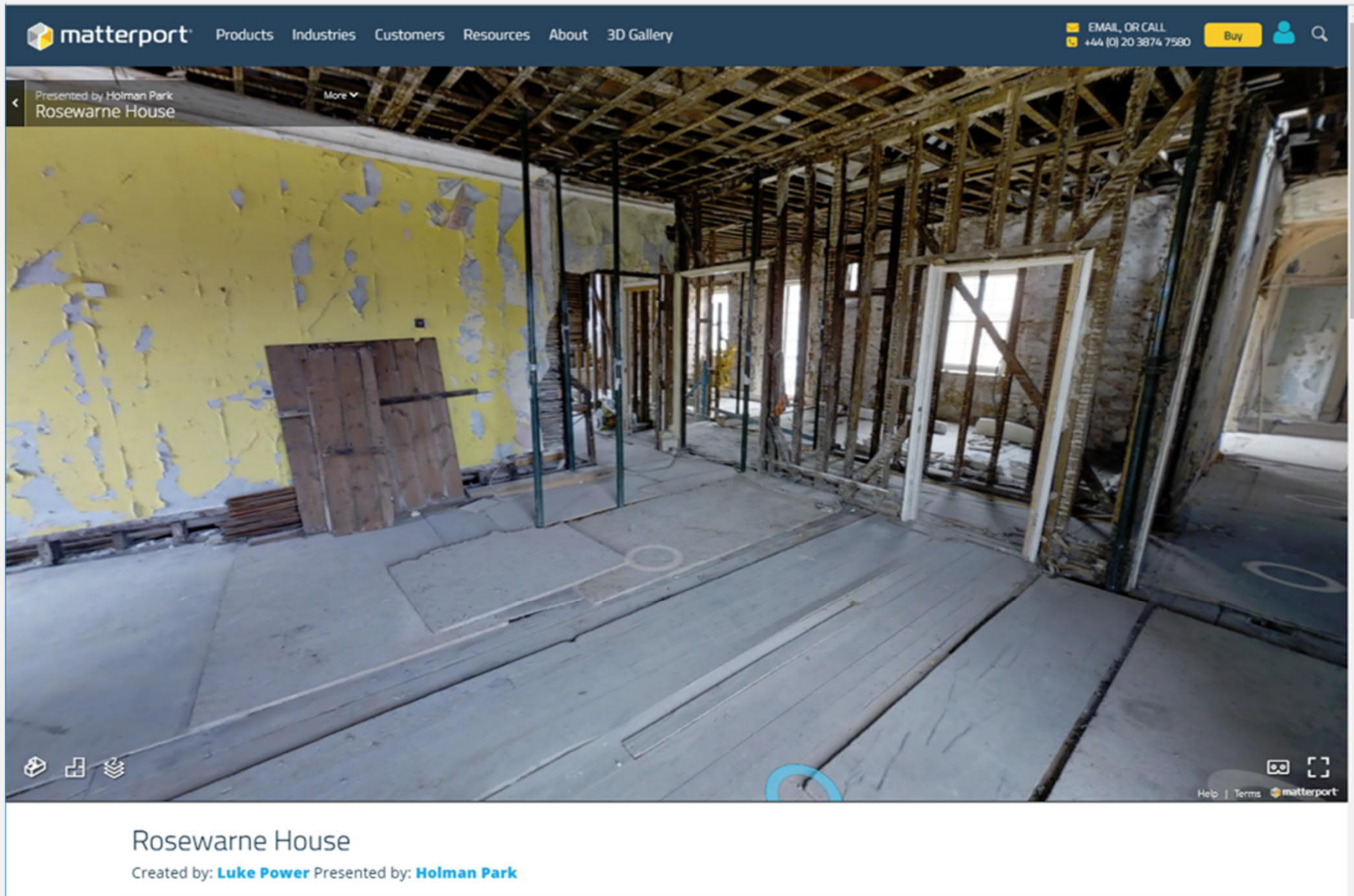
BLK 360



GREAT FOR BIG
SPACES(60M RANGE)
GOOD OUTDOORS
GREATER ACCURACY
ANYONE CAN HIRE

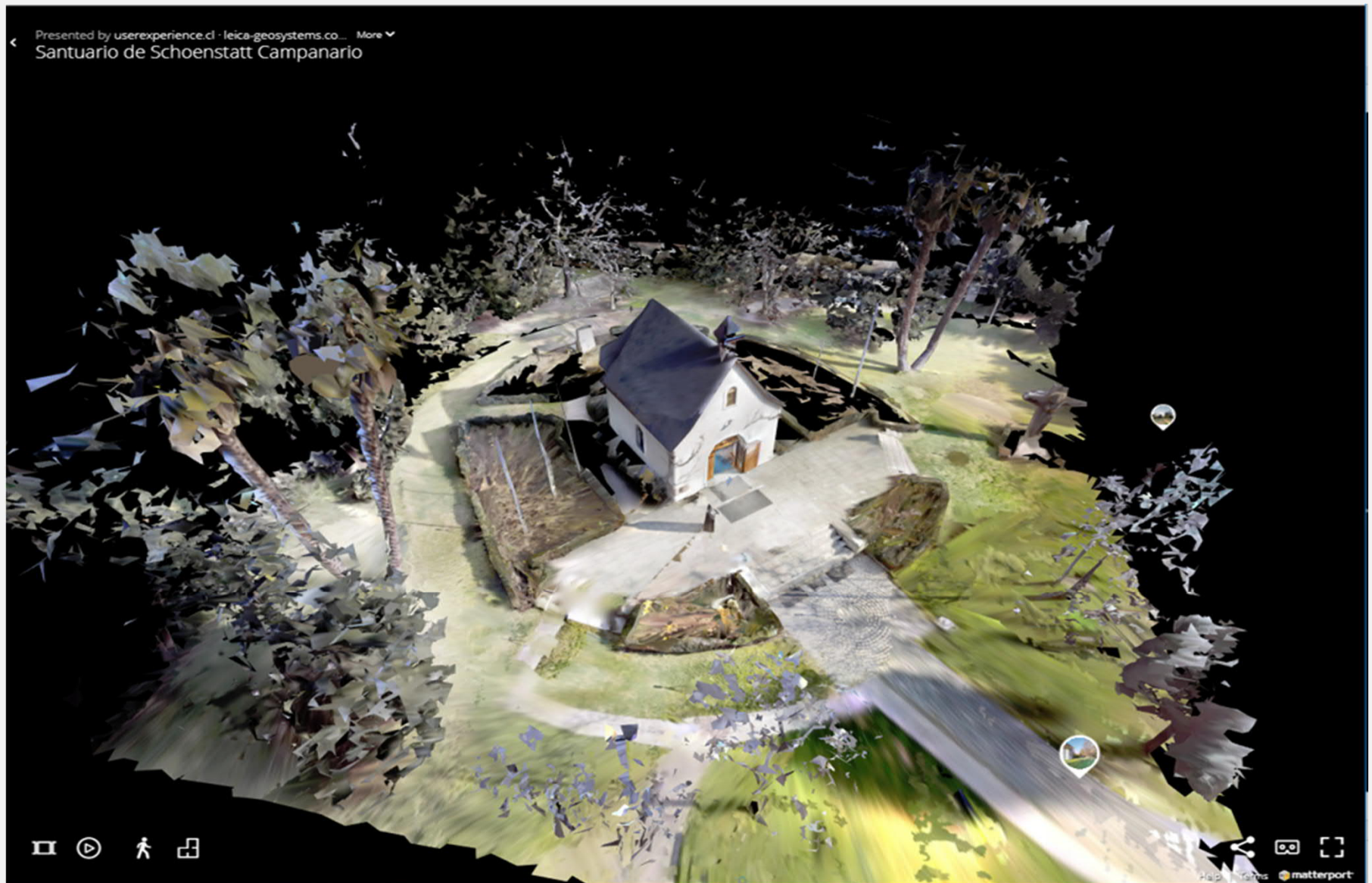
www.sccssurvey.co.uk
or
www.3dvrsurveys.co.uk

MATTERPORT DEMONSTRATION



<https://matterport.com/en-gb/3d-space/rosewarne-house/>

BLK360 / MATTERPORT INTEGRATED



<https://my.matterport.com/show/?m=EDyscq93X6k>

CONGESTED SPACE / MATTERTAGS



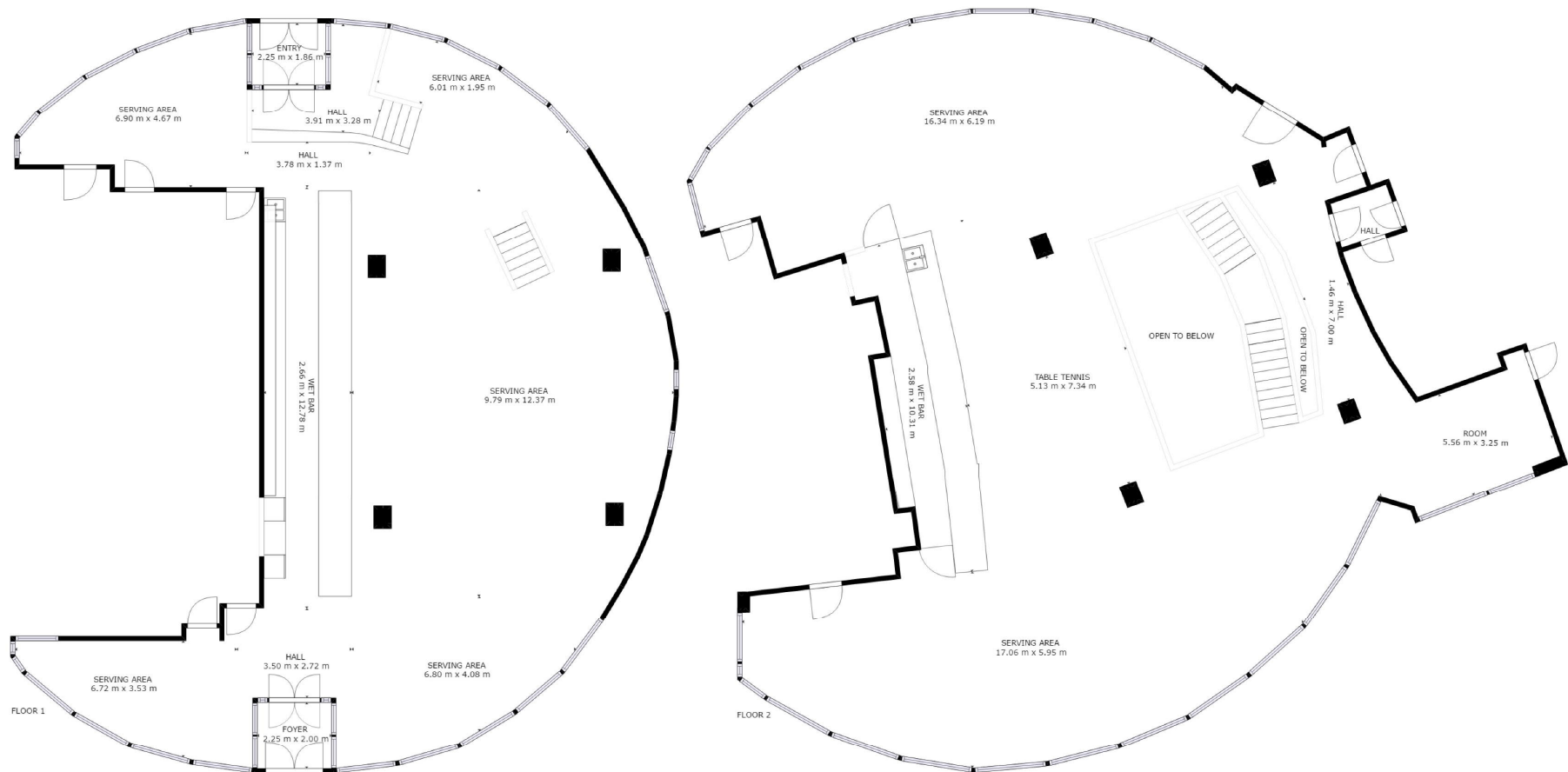
<https://my.matterport.com/show/?m=93s9v4DBFY0>

HIGH RESOLUTION PHOTOGRAPHS



FROM ANY ANGLE, ANY DIRECTION AND ALL IN ONE PLACE!

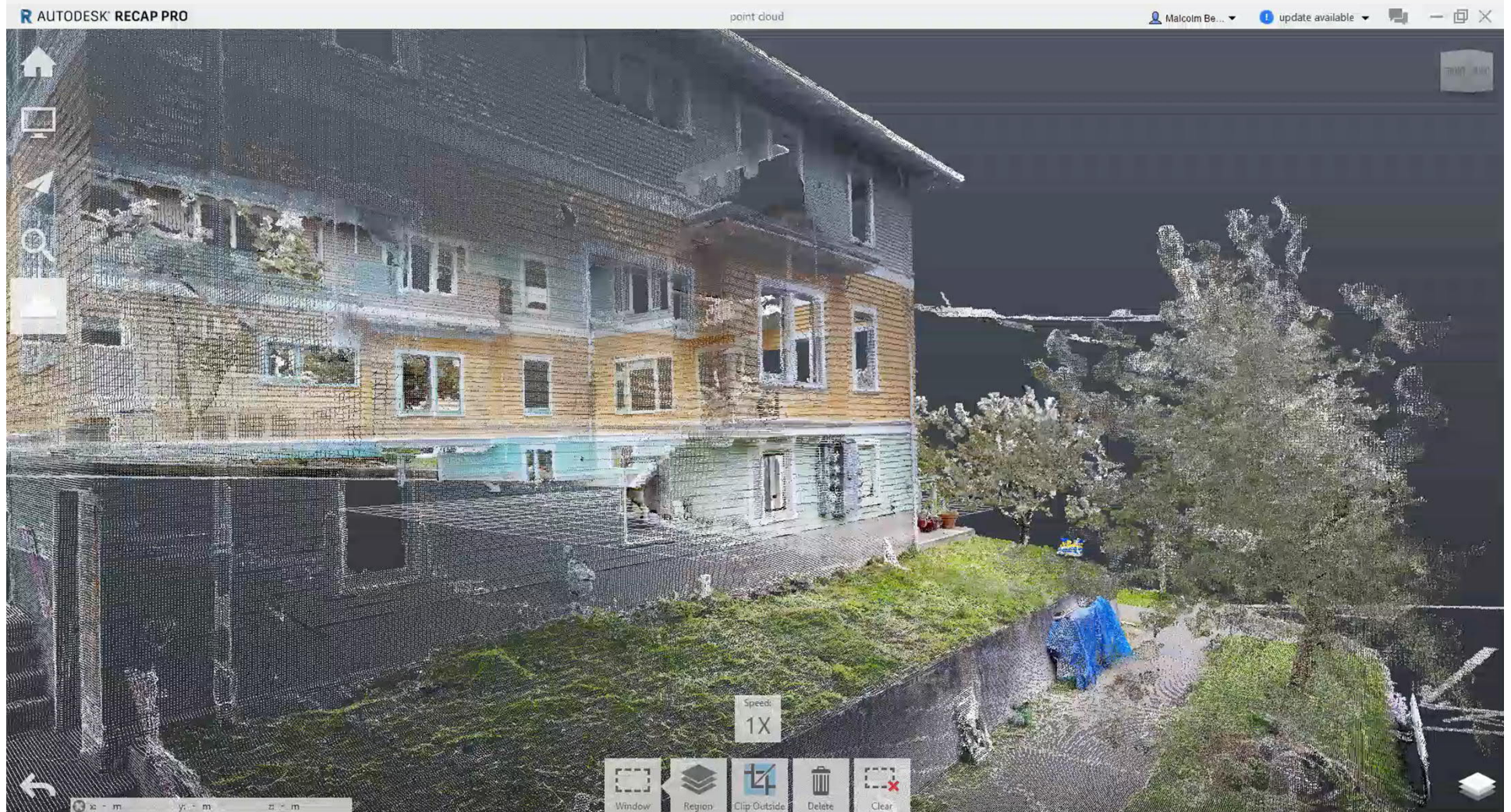
2D FLOORPLANS



GROSS INTERNAL AREA
FLOOR 1 : 278 m², FLOOR 2 : 323 m²
TOTAL: 601 m²

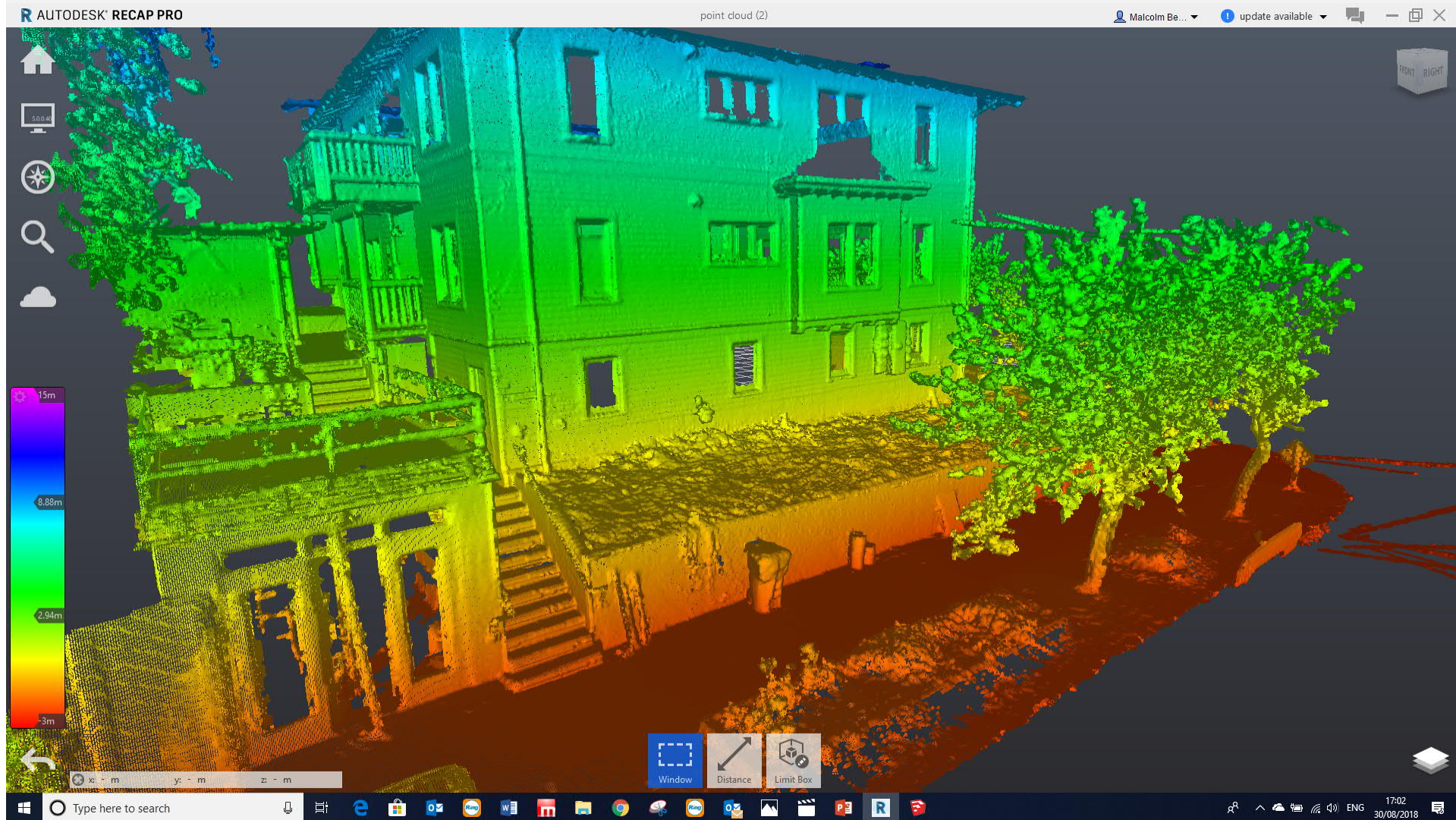
SIZES AND DIMENSIONS ARE APPROXIMATE, ACTUAL MAY VARY.

XYZ POINT CLOUD MESH

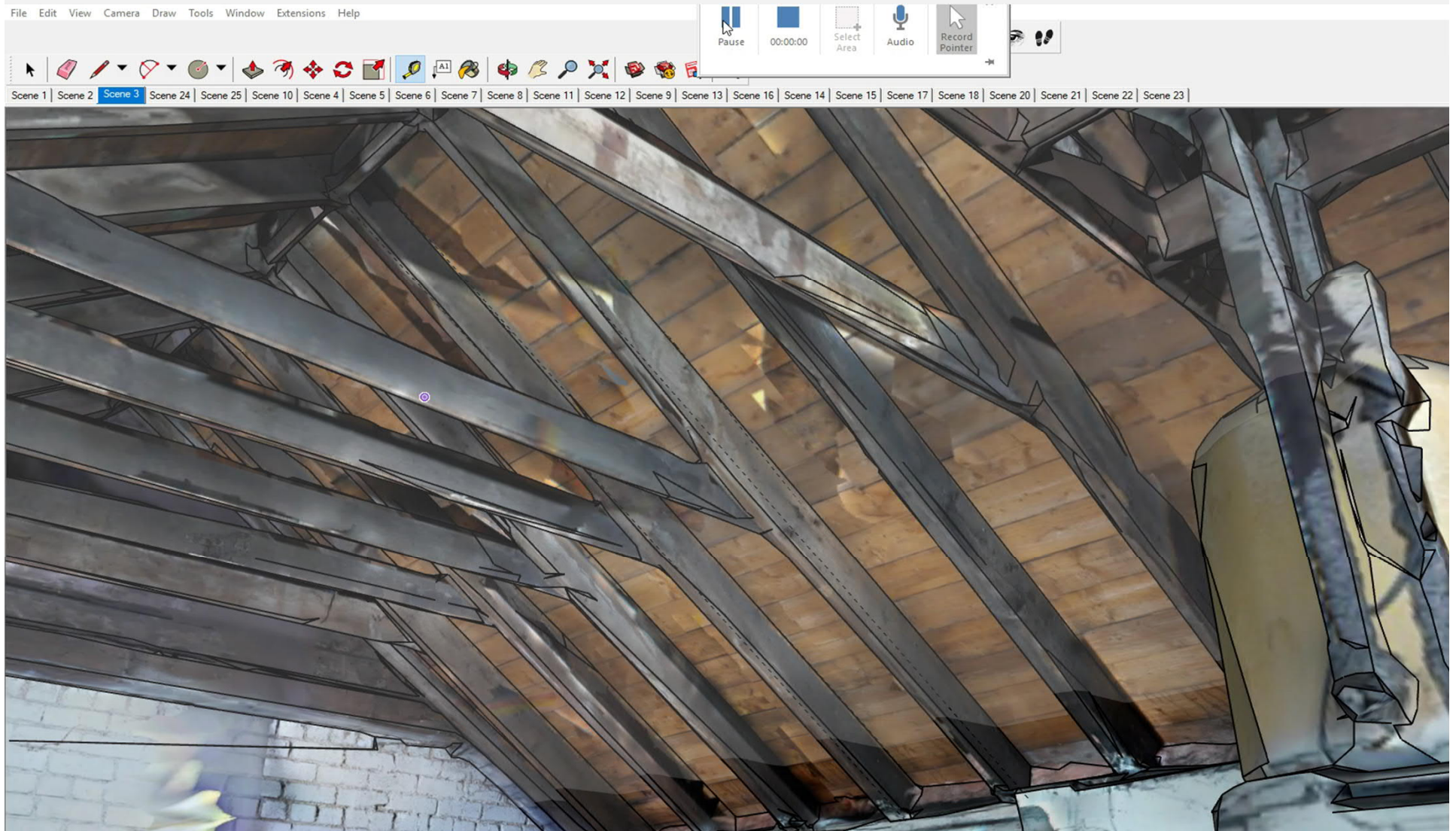


<https://youtu.be/1stCqUEDkIM>

XYZ POINT CLOUD MESH VERTICALITY



OBJ FILE POLYGON MESH



MEASURE ANYTHING, CREATE PLANS, SECTIONS, ETC

<https://youtu.be/tmP-2refaCO>

MIXED REALITY



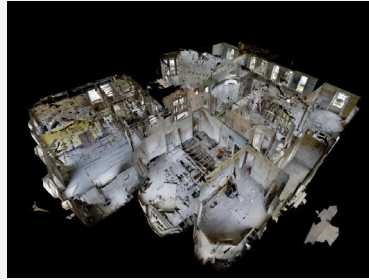
<https://youtu.be/M0H7GIOvdnQ>

WHAT A 3D SCAN PROVIDES



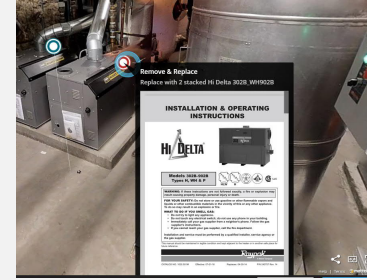
Walkthrough Tour

Freely walk from Room to Room



Floor Plan / 3D Doll House

See entire space as a 3D model or photo plan



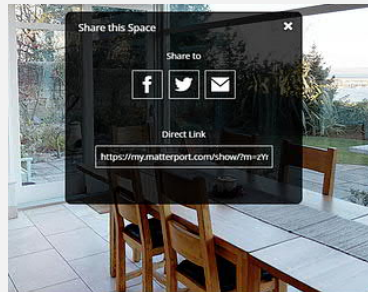
Mattertags

Add photos, audio / video to areas throughout tour



Core VR

Explore with Google Cardboard, VR, Daydream



Share Online

Access from any device, password protect



Schematic Floor Plans

Professional printable floor plans with measurements.



High Res Photos

From any angle, and of the whole property



3D Data for Designers

Available for import to any cad platform



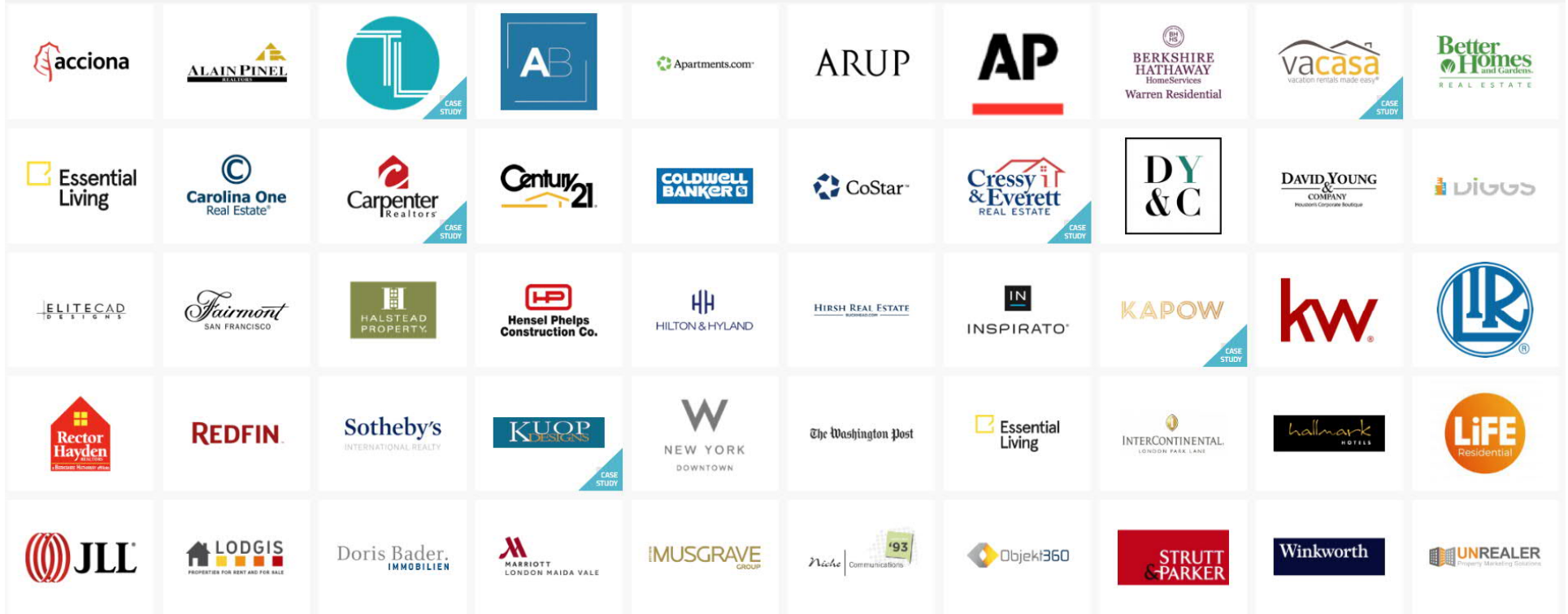
XYZ files

Available for import to any cad platform

USEFULNESS OF A SCAN

- Cut down on site visits
- No need to revisit site to re-measure
- All in one place high quality photographic record / condition survey
- 2D Floor Plans
- 3D Data for export to BIM accurate to 1%
- Low cost External Providers to build REVIT models of refurb
- Reflected Ceiling Plan Photos
- Ability to tag assets
- As built documentation
- Virtual Reality / Augmented Reality / Mixed Reality
- Communicate Structural Engineering Intentions to Clients & Architects

WHO'S USING THIS TECHNOLOGY?



- BAM, Ferrovial, Kier, Turner Townsend
- Crossrail, Thames Tideway, Northern Line Extension

UK PRESS EXTRACTS



Website of the Chartered Institute of Building

INTERVIEW: WHY TIER ONE CONTRACTORS CAN'T GET ENOUGH OF MATTERPORT

0 Comments

19 OCTOBER 2017 | BY STEPHEN COUSINS

The majority of tier one contractors in Britain have deployed the innovative 3D scanning system Matterport, explain Charles Hill and Karl Pallas, co-directors of Immerse UK, a local reseller for the system.

What is Matterport?

CH A camera device that records light and depth data to quickly generate an accurate photo-realistic 3D model of a space. The scans are created by moving the device to successive positions around a building, each scan rotation takes around 30 seconds.

The raw scan data is uploaded to the cloud to quickly generate a complete dimensionally accurate 3D model, which can either be downloaded as a point cloud file (the same output as laser scanner) as a coloured texture map mesh file or viewed in a web browser.

Who is using it and how?

CH Basically every tier one has it – it's being used on the King's Cross redevelopment, on Thames Tideway, and on the Northern Line extension.

The BAM Ferrovial Kier joint venture is using it on the Farringdon Crossrail station to create an accurate record of work before trades hand-off.

For example, a scan might be carried out when the block layers finish before the first fix electrical guys come in. The files are time and date stamped and it's possible to add tags to the 3D space that link back to the document control system to highlight any outstanding RFIs.

Sending a person out daily to capture a space and share it with subcontractors removes the need to take lots of photos and the potential for a dispute.

What are the benefits?

KP Unlike laser scanners that require a skilled engineer, anyone can use a Matterport device. Onsite capture is much faster, the system auto-aligns itself and works out the floor level, so there is no need to set out targets.

**"A SCAN MIGHT BE CARRIED OUT WHEN THE BLOCK LAYERS FINISH BEFORE THE FIRST FIX ELECTRICAL GUYS COME IN. THE FILES ARE TIME AND DATE STAMPED AND IT'S POSSIBLE TO ADD TAGS TO THE 3D SPACE THAT LINK BACK TO THE DOCUMENT CONTROL SYSTEM TO HIGHLIGHT ANY OUTSTANDING RFIS."
- CHARLES HILL, IMMERSE UK**

<http://www.bimplus.co.uk/news/interview-why-tier-one-contractors-cant-get-enough/>



Website of the Chartered Institute of Building

TURNER & TOWNSEND LAUNCHES 3D VIRTUAL TOURS WITH MATTERPORT

0 Comments

20 MAY 2018 | BY BIM+ STAFF

Global professional services firm Turner & Townsend has adopted Matterport technology to launch 3D virtual tours as part of its documentation process for site compliance and reporting.

Matterport enables users to quickly and easily capture real-world spaces with its Pro2 camera in order to create 3D virtual tours, floorplans and precision photography.

The technology has the flexibility to integrate into BIM, helping firms more accurately document key construction milestones and effectively communicate progress to project stakeholders, providing transparency throughout all phases of a project.

The technology will be used by Turner & Townsend to create efficiencies in documentation, information sharing between project managers, and client reporting across seven different facilities.

T&T is working on a number of notable projects, including the 1.5m sq ft £470m mixed-use Sheffield Heart of the City II development, which it is project and cost managing. The project is due to be fully complete in 2024, with the initial phase scheduled for completion in 2019.

Nick Jones, director, project management at Turner & Townsend, said: "As a business, we are constantly seeking new and better ways to add value for our clients. It is our role to eliminate any grey areas in documentation and reporting. Matterport captures create a clear and absolute position which offers transparency and cuts down any contractual disputes.

"The potential for Matterport to be integrated with BIM technology makes the landscape for its future application vast. Using the Matterport 3D virtual tours means that those clients who don't want to get mud on their boots can have direct access to site progress, and we have a clear and honest depiction of work on site documented in an interactive format."



**"THE POTENTIAL FOR MATTERPORT TO BE INTEGRATED WITH BIM TECHNOLOGY MAKES THE LANDSCAPE FOR ITS FUTURE APPLICATION VAST."
- NICK JONES, TURNER & TOWNSEND**

<http://www.bimplus.co.uk/news/turner-townsend-launches-3d-virtual-tours-matterpo/>

APPROXIMATE COST OF A SCAN



MATTERPORT (SERVICE PROVIDER)

½ DAY £300
(APPROX 500M2)

FULL DAY £550
(APPROX 500M2)



BLK 360 (HIRE YOURSELF PRICE)

DAILY £180
(APPROX 1,000M2)

WEEKLY £720
(APPROX 12,000M2)

Or combine the two, external Matterport service provider operates both BLK360 & Matterport and integrates into one model. Contact www.3dvrsurveys.co.uk for more info or quote.

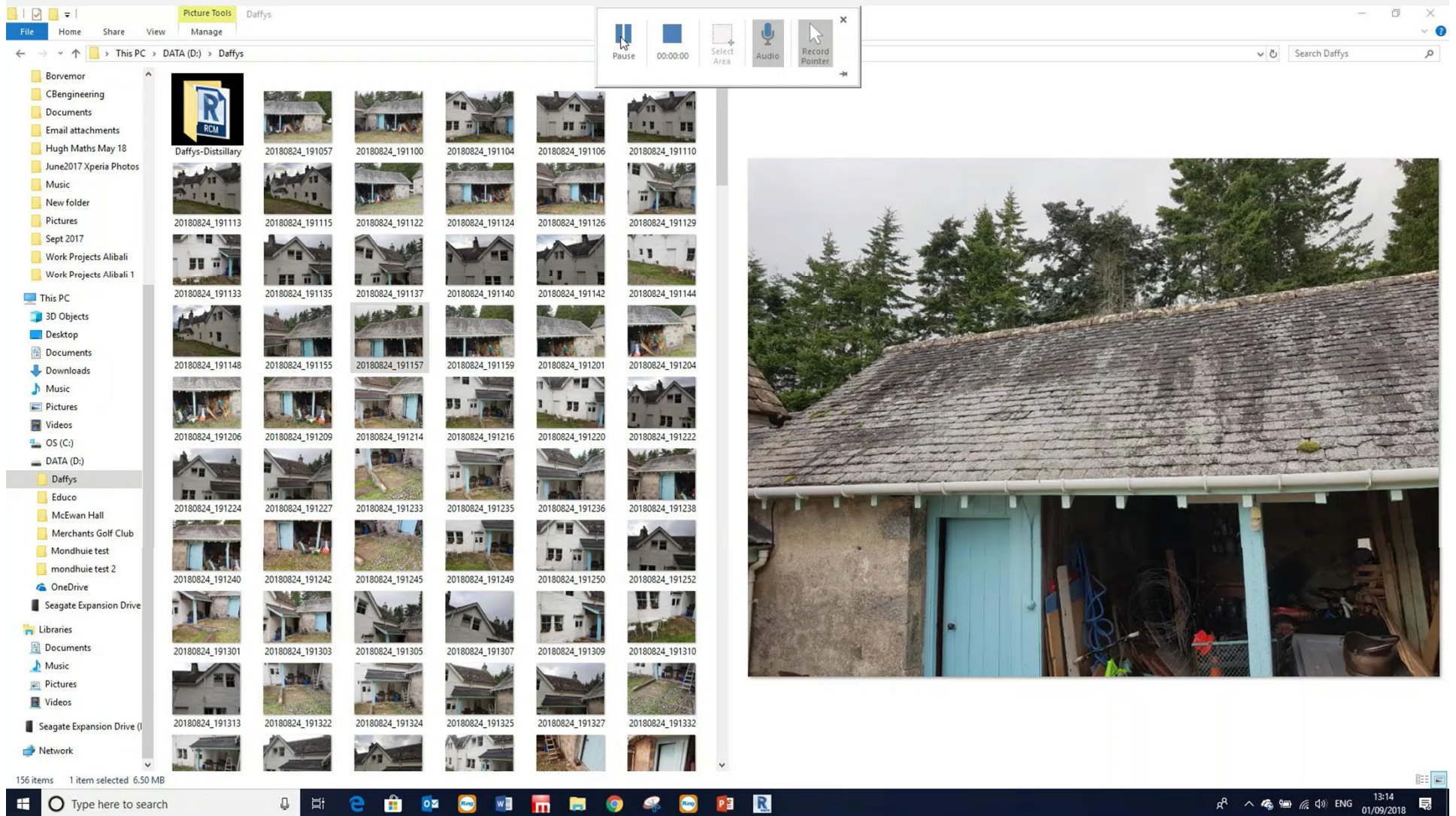
DIY PHOTOGRAMMETRY

- Simple and cost effective – Anyone can do this for free with a phone!
- Step 1: Take Photos of a building elevation
- Step 2: Import into Recap Photo

(30 day free trial available) thereafter £30/month subscription. However most companies will have this included as part of their autocad bundle)

- Step 3: Export OBJ file or Point Cloud from Recap Photo
- Step 4: Import OBJ file to Sketchup (free version) using Simlab OBJ importer (30 import free trial). Or import to Revit or Autocad.

AUTOCAD RECAP PHOTO DEMO



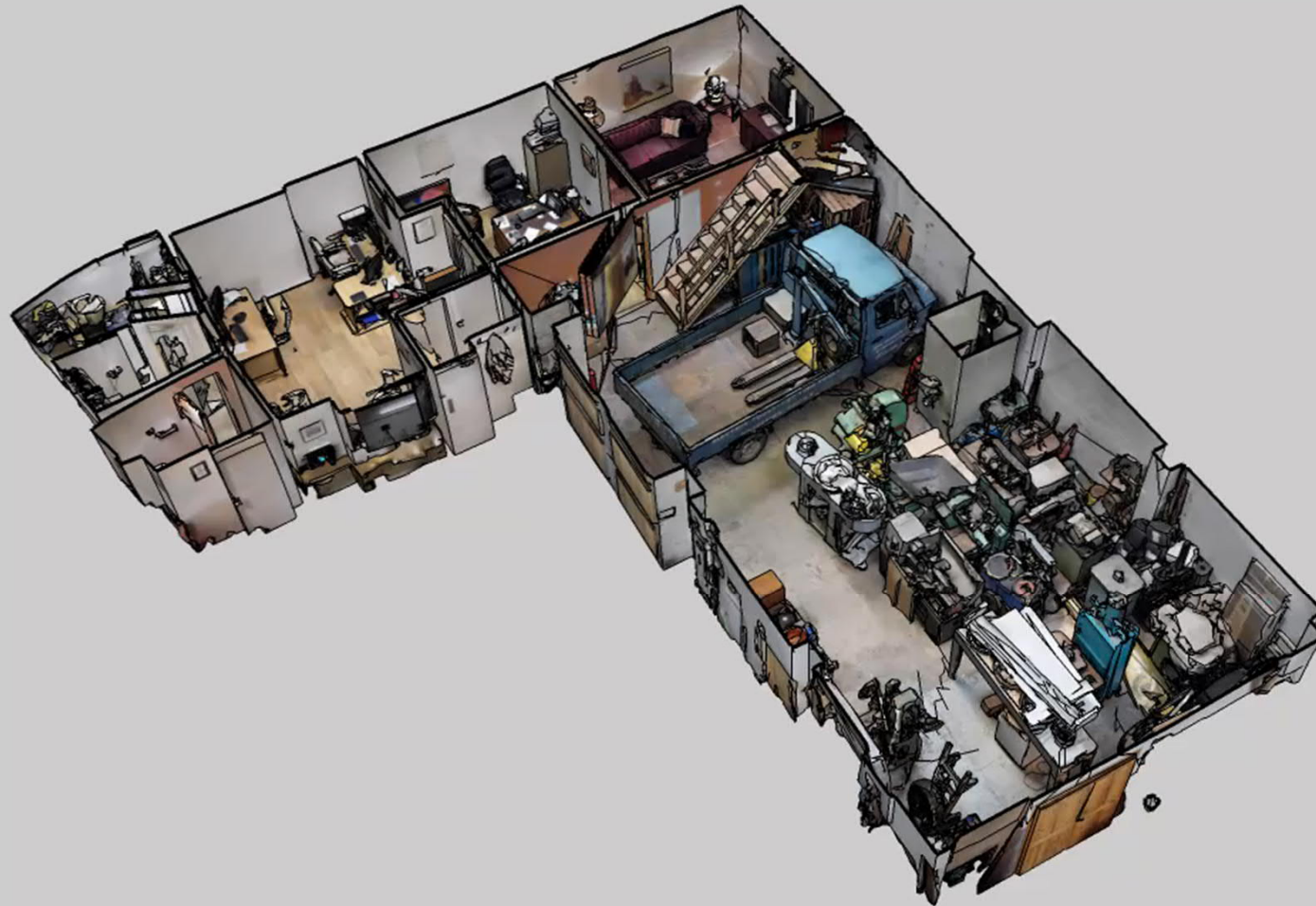
<https://youtu.be/XvHFd1w4nHU>

RECAP PHOTO OUTPUT IN SKETCHUP



<https://youtu.be/tqneV-S4TzY>

THANK YOU / QUESTIONS



3D VR SURVEYS

For More Information please feel free to contact me via the following websites

www.3dvrsurveys.co.uk

www.cb-eng.co.uk



CALUM BENNETT
ENGINEERING