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TACKLING THE BUILDING SAFETY ACT & FIREIE ON A LIVE PROJECT

STEVE RUDGE – UK AEC TECHNICAL & DELIVERY MANAGER

UK AEC TECHNICAL & DELIVERY MANAGER

STEVE RUDGE

- 23 Years with AMEC/NNC/Morgan Sindall – D&B Lead
- 13+ Years Excitech/Symetri – Head of Technical & Delivery
- 1st BIM project Heysham 2/Torness
- Power Station 1987 - 1990

WHAT WE DO

End Client

Designer

Contractor

Manufacturer

Software

Training

Support

Consulting

Solutions by SYMETRI ADDNODE GROUP

IT solutions

Document management

Project delivery

SYMETRI
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At Symetri we have continuously expanded to provide even better leading-edge solutions and services to more markets.

800
EMPLOYEES

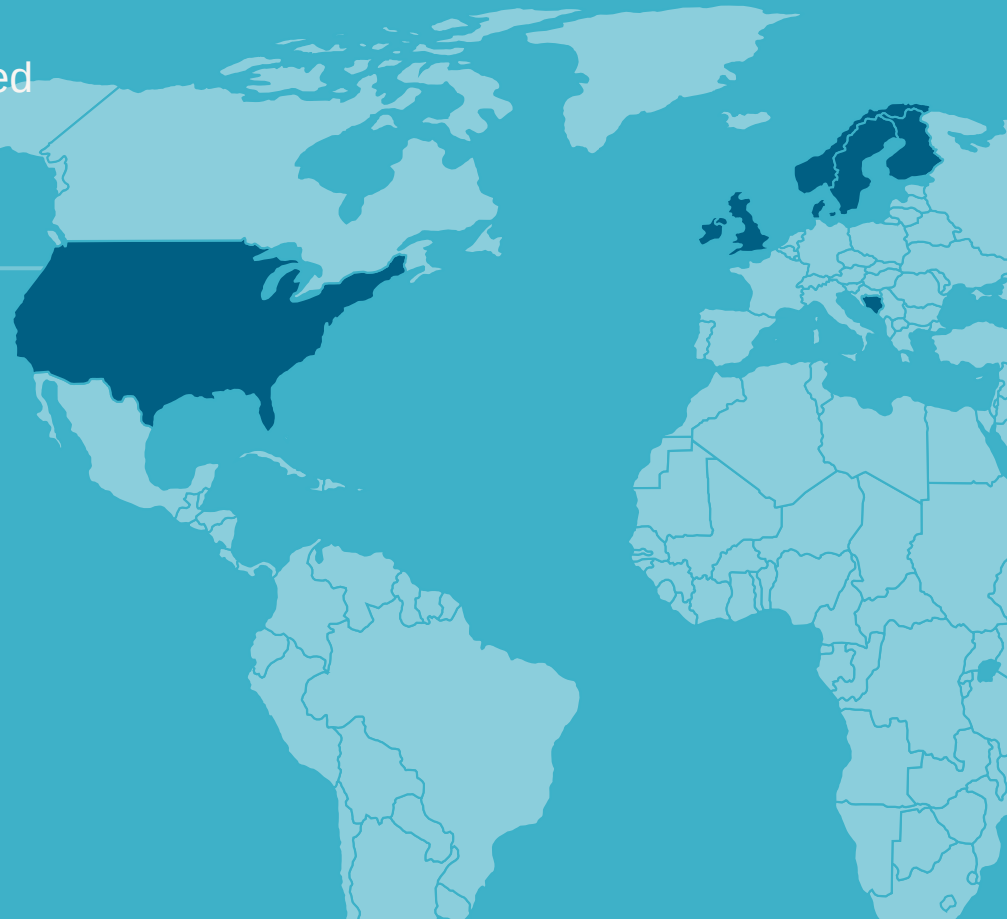
250K
USERS DAILY

7
COUNTRIES

400
CONSULTANTS

30
OFFICES

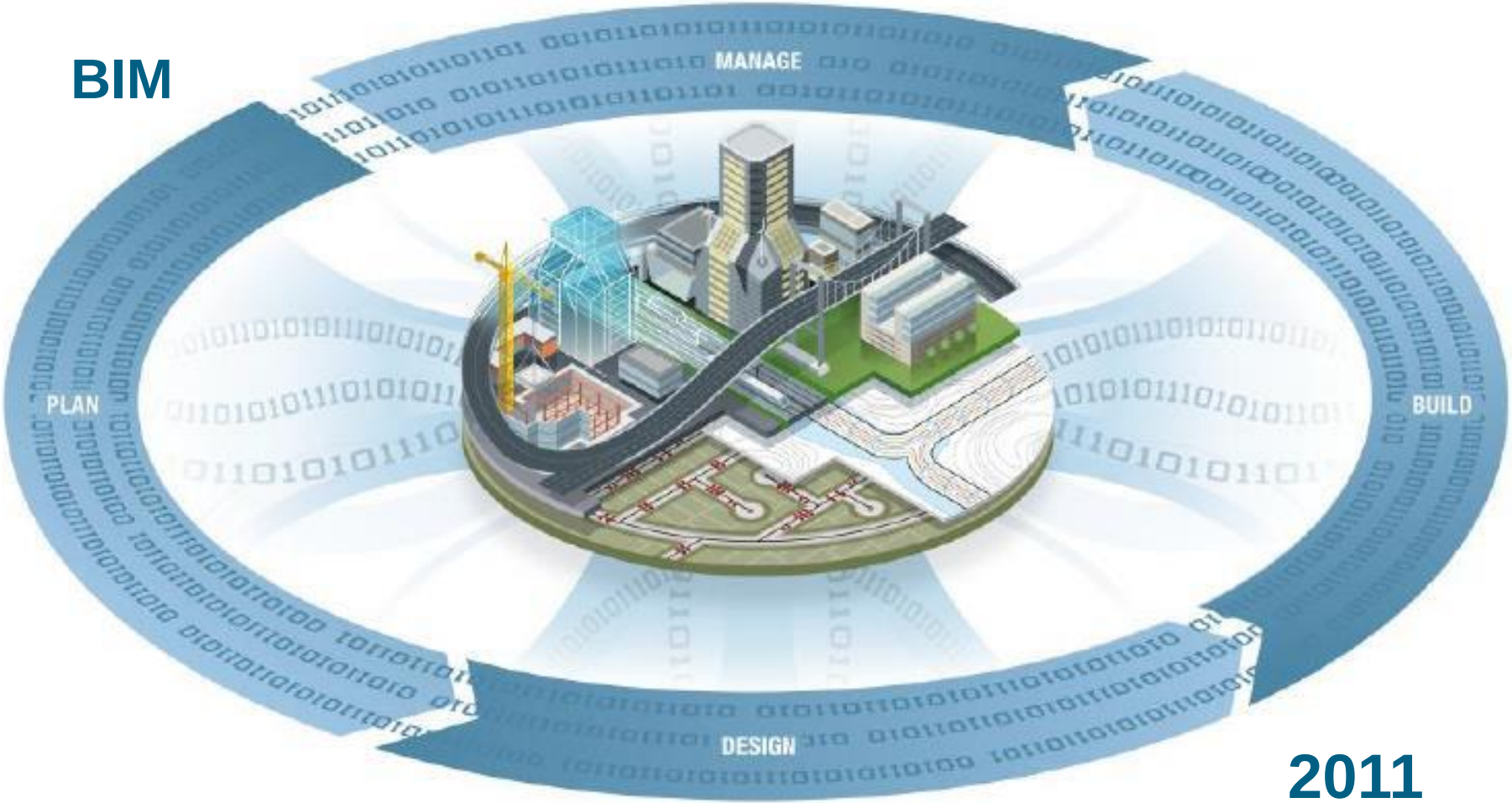
3.1
BILLION SEK



BSA - DIGITAL DELIVERY

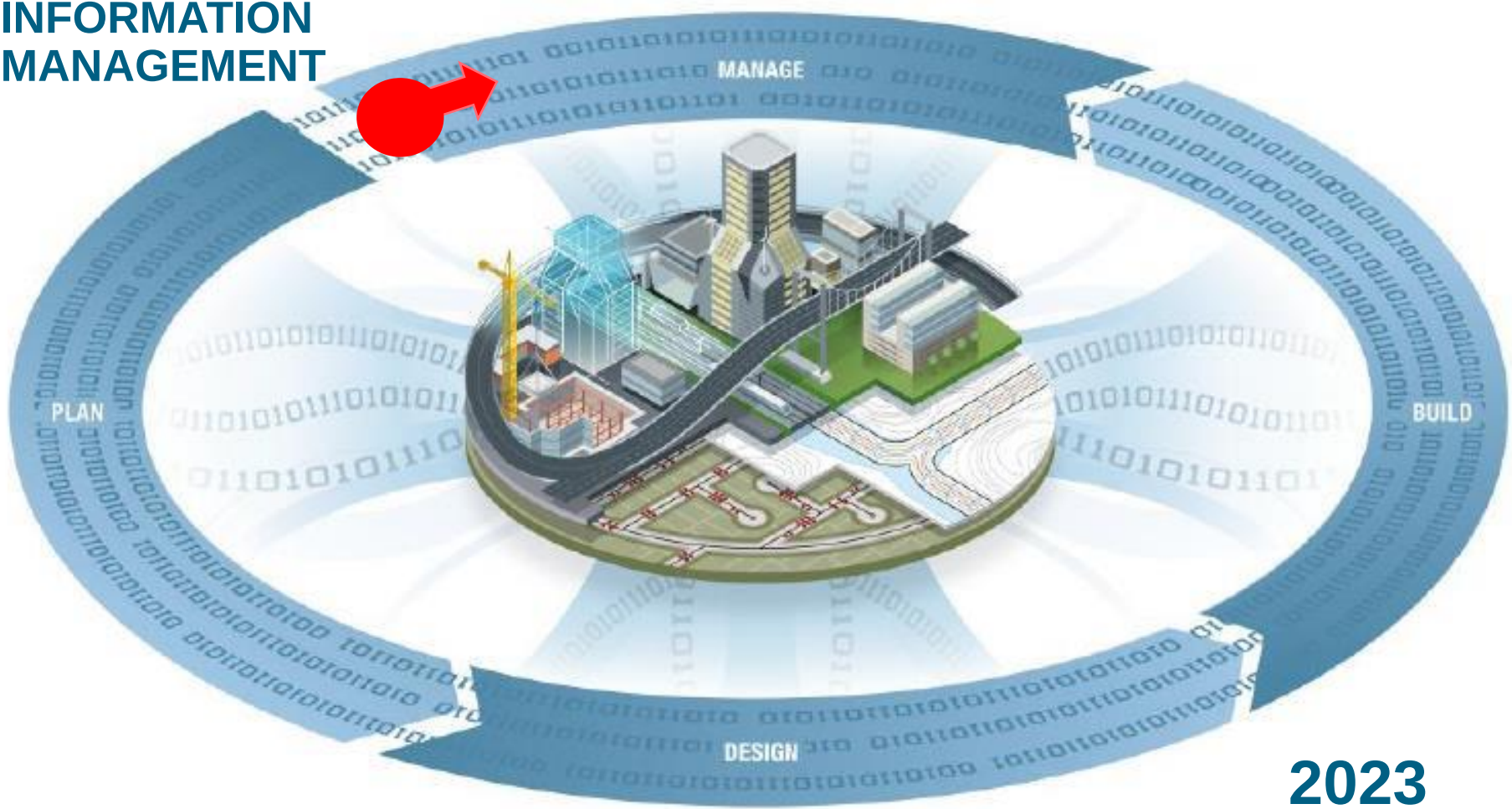
- BIM
- Golden Thread
- BS8644-1
- FIREie
- IEPs
- ISO 19650
- UK BIM Framework
- Gateways

BIM



2011

INFORMATION MANAGEMENT



2023

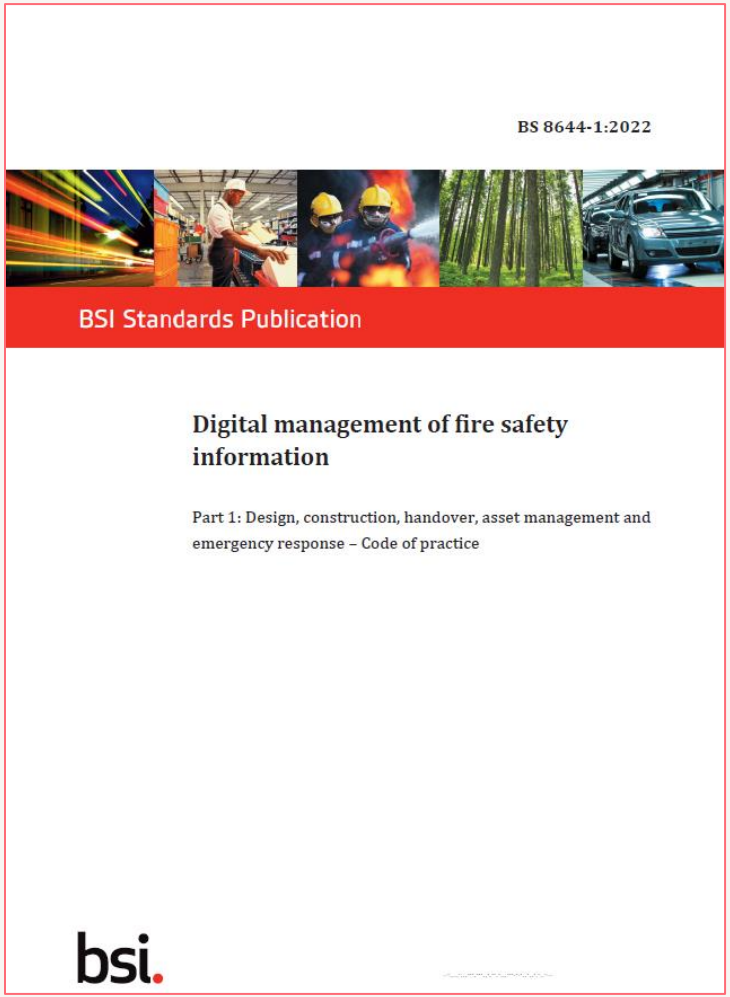
Policy paper

Building Regulations Advisory Committee: golden thread report

Published 21 July 2021

GOLDEN THREAD

1. Accurate and trusted
2. Residents feeling secure in their homes
3. Culture change
4. Single source of truth
5. Secure
6. Accountable
7. Understandable / consistent
8. Simple to access
9. Longevity / durability and shareability of information
10. Relevant / proportionate



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BS 8644 is expected to be published in the following parts:

- Part 1: Design, construction, handover, asset management and emergency response – Code of practice;
- Part 2: Development and use of fire strategies – Code of practice.

a) Provide a safer built environment that is appropriate for the intended end users;

b) Reduce disruption to business operations and property loss from fire; and

c) Enable relevant, accurate and accessible fire safety inform ation to be made available to the right people at the right time.

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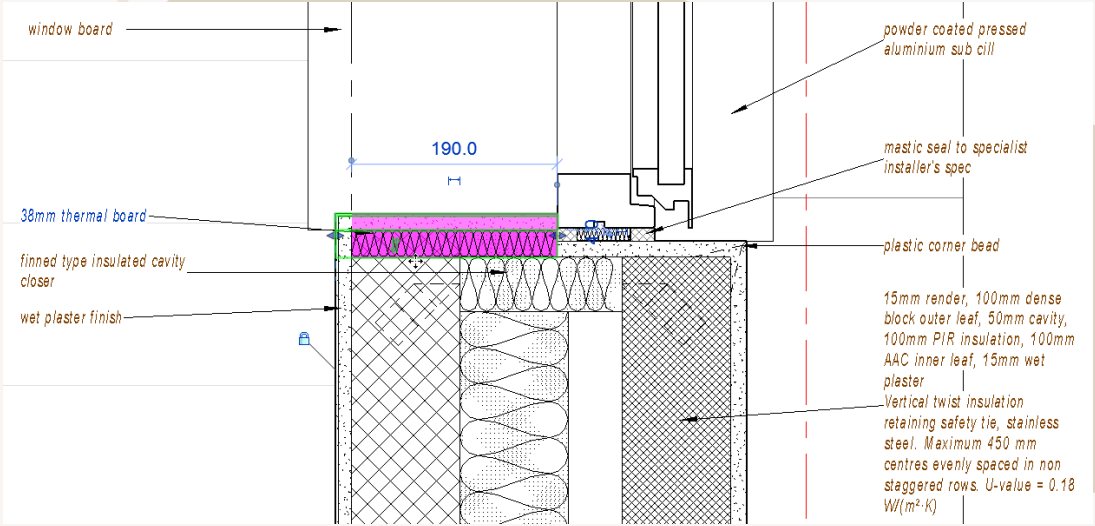
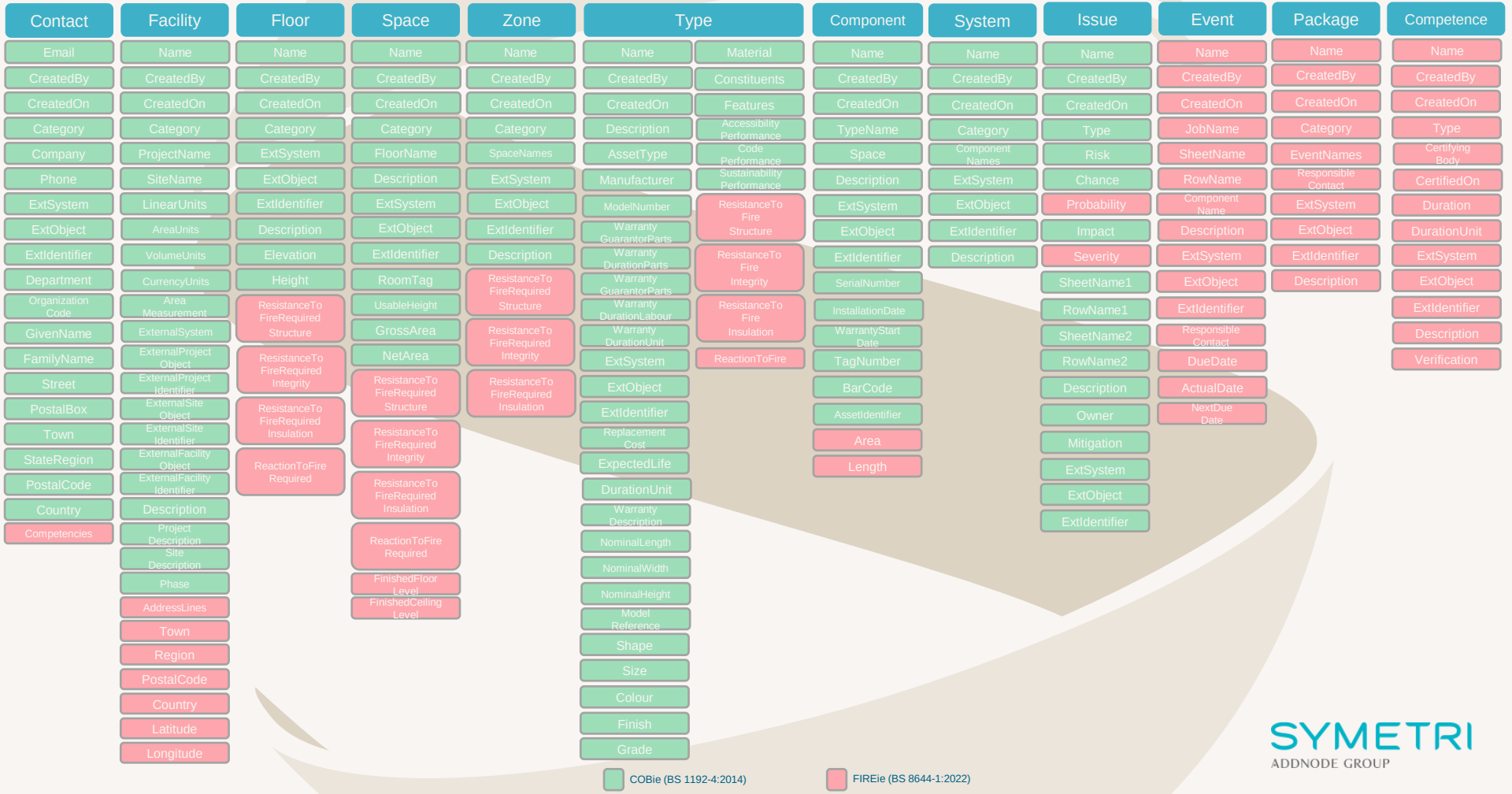
FIREIE IS NOT COBIE – MAINTAINABLE ASSETS



- Cavity Barriers
- Door Intumescent Strips
- Fire Collars
- Penetration Foam fills
- External Insulation
- Glazing
- Balconies
- Party Walls Insulation

MATERIALS!

Field data comparison between COBie (BS 1192-4:2014) and FIREie (BS 8644-1:2022)



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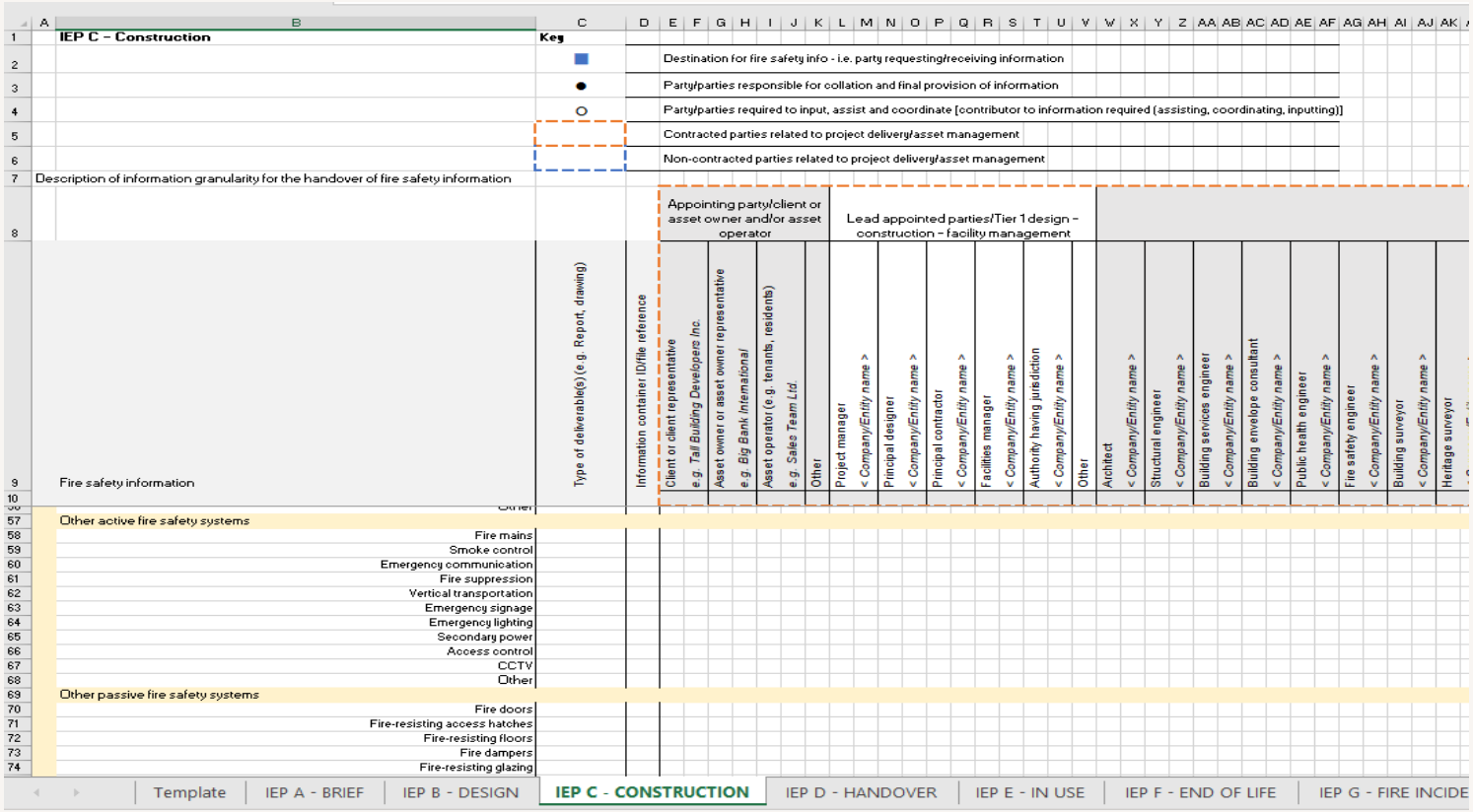
IEP FOR DELIVERY



IEP C – Construction

Key

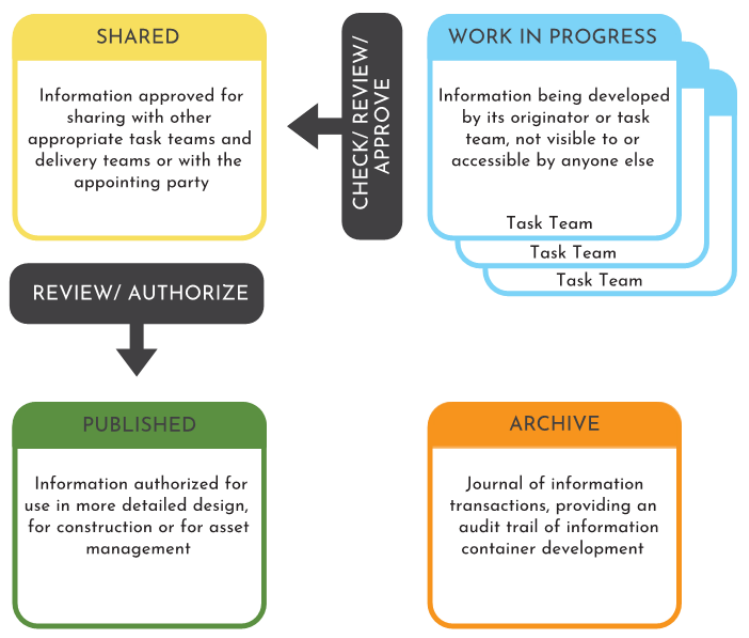
- ■ Destination for fire safety info - i.e. party requesting/receiving information
- ● Party/parties responsible for collation and final provision of information
- ○ Party/parties required to input, assist and coordinate [contributor to information required (assisting, coordinating, inputting)]
- Contracted parties related to project delivery/asset management
- Non-contracted parties related to project delivery/asset management

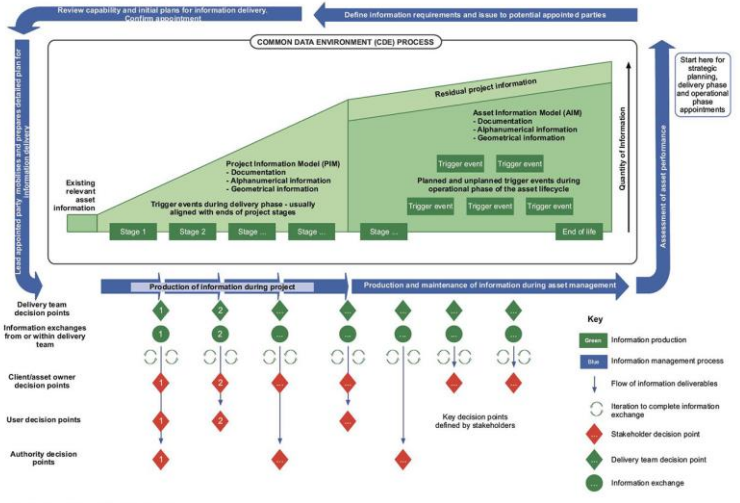
Description of information granularity for the handover of fire safety information

Fire safety information	Type of deliverable(s) (e.g. Report, drawing)	Information container ID/file reference	Appointing party/client or asset owner and/or asset operator: Client or client representative (e.g. Tall Building Developers Inc.)	Asset owner or asset owner representative (e.g. Big Bank International)	Asset operator (e.g. tenants, residents) (e.g. Sales Team Ltd.)	Other	Lead appointed parties/Tier 1 design – construction – facility management: Project manager (< Company/Entity name >)	Principal designer (< Company/Entity name >)	Principal contractor (< Company/Entity name >)	Facilities manager (< Company/Entity name >)	Authority having jurisdiction (< Company/Entity name >)	Other	Architect (< Company/Entity name >)	Structural engineer (< Company/Entity name >)	Building services engineer (< Company/Entity name >)	Building envelope consultant (< Company/Entity name >)	Public health engineer (< Company/Entity name >)	Fire safety engineer (< Company/Entity name >)	Building surveyor (< Company/Entity name >)	Heritage surveyor
Other																				
Other active fire safety systems																				
Fire mains																				
Smoke control																				
Emergency communication																				
Fire suppression																				
Vertical transportation																				
Emergency signage																				
Emergency lighting																				
Secondary power																				
Access control																				
CCTV																				
Other																				
Other passive fire safety systems																				
Fire doors																				
Fire-resisting access hatches																				
Fire-resisting floors																				
Fire dampers																				
Fire-resisting glazing																				

Template | IEP A - BRIEF | IEP B - DESIGN | **IEP C - CONSTRUCTION** | IEP D - HANDOVER | IEP E - IN USE | IEP F - END OF LIFE | IEP G - FIRE INCIDE

ISO 19650 PRINCIPALS





b) BS EN ISO 19650-1:2019, Figure 1

NA.2 Information container identification (ID)

NA.2.1 Clarification

ISO 19650-2:2018 (5.1.7.a) states: 'The project's common data environment shall enable each information container to have a unique ID, based upon an agreed and documented convention [comprising] fields separated by a delimiter'.

NA.2.2 Information containers

In the UK, the unique ID for project file information containers within a common data environment (CDE) should be defined using all the fields shown in Figure NA.1 in the order shown, coded according to NA.3, separated by a delimiter and used in its entirety as a single unique string.

Field codes within the file information container ID should be formed using only alphanumeric characters (capital and lower-case letters A–Z and digits 0–9).

The convention for naming CAD layers is documented in BS EN ISO 13567-2.

Project — Originator — Functional Breakdown — Spatial Breakdown — Form — Discipline — Number

UK BIM FRAMEWORK

bsi. cdbb UKBIM ALLIANCE

How the UK BIM Framework will help your business

The UK BIM Framework is...
an overarching approach that helps you to implement information management successfully into your business.

The Construction Playbook was created to ensure that we change our approach to delivery and asset operation. It recommends using the UK BIM Framework to align with the correct standards as well as having the right tools and guidance to make this a reality.

Begin implementing better information management into your organisation, with the guidance and support of the UK BIM Framework.

UKBIMFramework.org

Key benefits:

Helps owners and operators achieve their business objectives and reduce the risks and costs through effective, secure and efficient production, use, and management of information

Reference:

ISO 19650 series of standards
Guidance Parts 1-3
Guidance Parts A-F

Information Requirements

State what you want

Q How can I get the right information to make decisions?

A By developing organisational information requirements that support your strategic objectives

A By developing robust and sufficiently precise information requirements

Key benefits:

Information requirements that can be tested and more easily followed

Ensure such requirements meet business objectives and operational needs without compromising on risk of loss, misuse or modification of sensitive information

Reference:

ISO 19650-2, 5.1
ISO 19650-3, 5.1
ISO 19650-5, 9
BS 8536-1/2
Guidance Part A, D
Guidance Part 2, 3
GSL Guidance

Tendering

Invite and Respond

Q How can I ensure organisations working on a project are capable, competent and will meet the brief?

A By having a value-based approach to procurement that considers quality as well as cost

A Ask all lead organisations for a BIM Execution Plan. Establish team member capability and capacity, ensure robust mobilisation planning

Key benefits:

Helps suppliers cost and assess project risks by making structured information available

Ensure that the right information is received to effectively assess the capability and capacity of potential suppliers

Reference:

ISO 19650-2, 5.2-4
ISO 19650-3, 5.2-4
Guidance Part E
Information Protocol

Information Delivery Planning

Plan how and when to deliver it

Q How can I ensure the right information will be available to the right people at the right time?

A By investing in processes, procedures and IT infrastructure that support collaborative working

A Develop and test procedures

Key benefits:

Ensures the consistent production of information by establishing the standards, methods, and procedures to be followed

Ensures that the methods specified are valid by testing them prior to the production of information

Reference:

ISO 19650-2, 5.5
ISO 19650-3, 5.5
Guidance Part C
Guidance Part F

Information Delivery

Deliver and authorise it

Q How can I produce information consistently and with confidence?

A By making sure the information standard and information production methods and procedures are robust and inform the authorisation process

Key benefits:

Reduces guesswork by having access to information produced by others when needed

Reduces rework by having access to relevant standards, methods and procedures

Reference:

ISO 19650-2, 5.6
ISO 19650-3, 5.6
BS 1192-4
PAS 1192-6
Guidance Part B
Guidance Part E
Guidance Part F

Information Acceptance

Accept and use

Q How can I ensure what I receive meets my brief?

A Verify against the information requirements as well as information standard and information production methods and procedures

Key benefits:

Know that information has gone through a robust approval and authorisation procedure before it has been delivered

Easier verification through the ability to test delivered information against the information requirements as well as the relevant standards, methods and procedures

Reference:

ISO 19650-2, 5.7
ISO 19650-3, 5.7
Guidance Part 3

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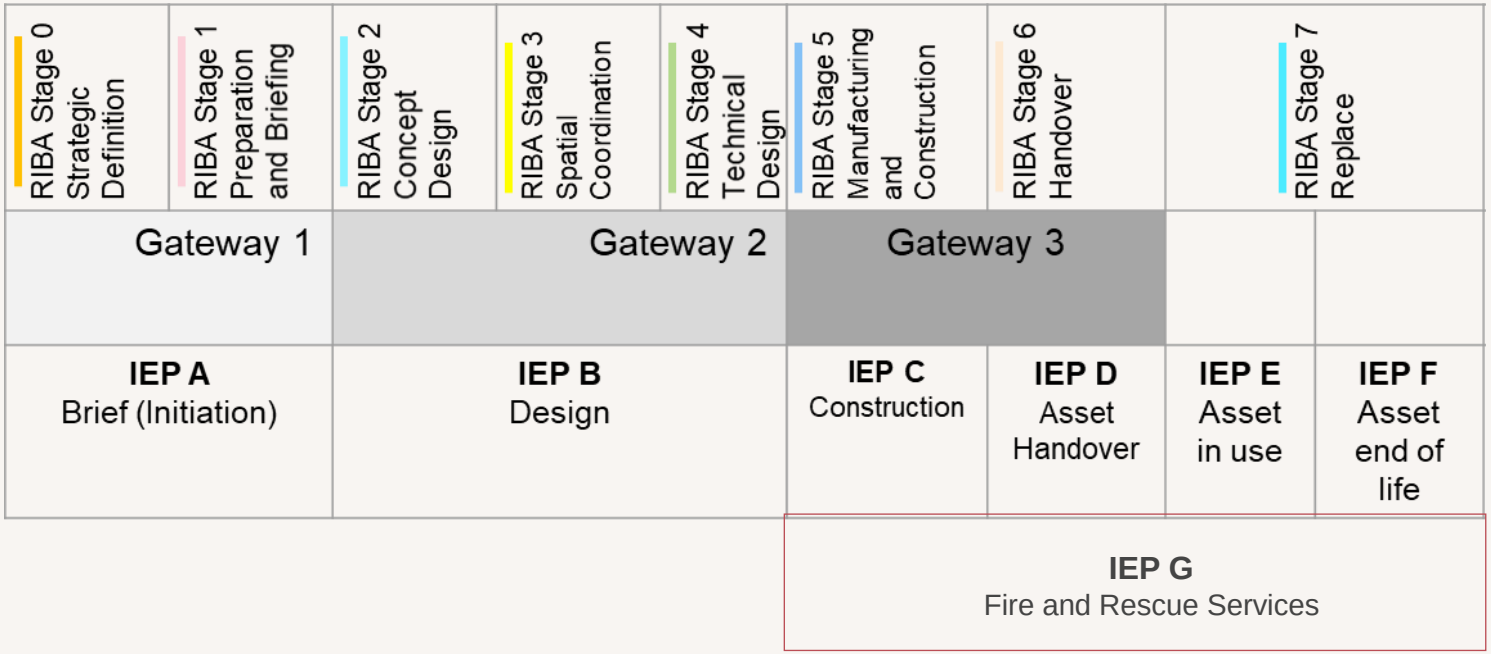
PROJECT LIFECYCLE INFORMATION



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HIGH RISK BUILDINGS

Gateway 1

- Pre Planning Fire Statement

Gateway 2

- Pre Construction Show a Safe Design

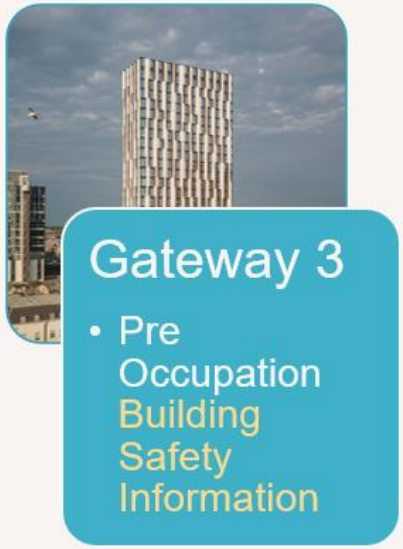
Gateway 3

- Pre Occupation Building Safety Information

GATEWAYS

- Submit Design to BSR
- 6 Weeks Frozen Design (No Changes)
- Fire & Emergency File – Sets out the key building safety information
- Process Similar to Existing Building Regulation Approach
- Construction Control Plan
- Prove the Golden Thread Approach
- BSR Approves Gateway Passed

GATEWAYS



- As-Built Design Information
- Updated / As-built Fire & Emergency file
- Construction Control Plan with Complete Change Control Log
- Resident Engagement Strategy
- Signed Joint Final Declaration Compliance – By Duty Holders
- Golden Thread – Complete Key Dataset
- BSR – Issues Completion Certificate

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BSA MANDATED REQUIREMENTS

1. Storage and Collaboration
2. Manage Change
3. Simple Platform
4. Compliance – Capture the Evidence
5. As-built
6. Share/Transferable Information

Handover - (PC) April 2023
(12 weeks Additional Fire Data Handover)

Start on site - April 2023

Handover Beyond October 2023

No drainage or foundations in the building foot print
Need Gateway 2

Gateway 3

Gateway 2 & 3

- BIM – ISO 19650 aligned
- Autodesk Construction Cloud – CDE
  - Models/Drawings
  - Specification
  - O&Ms
- Autodesk Construction Cloud – Construction Management
  - ITP
  - Sign off compliance Forms/Sheets
  - Bolster Fire Reports

PC - April 2023

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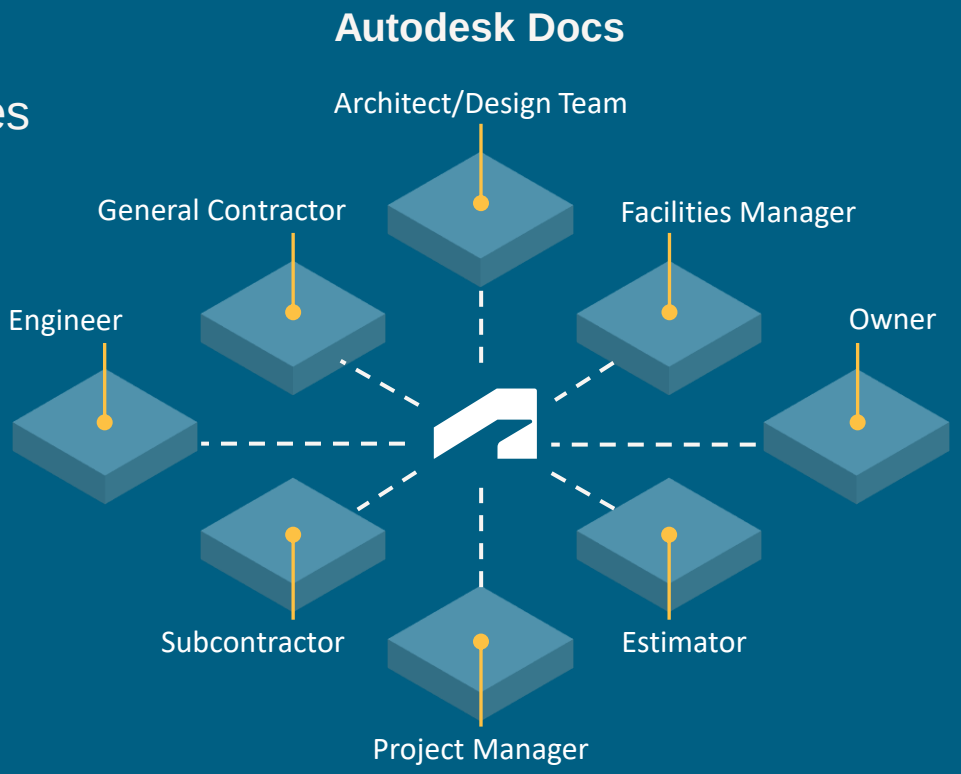
BSA MANDATED REQUIREMENTS

1. Storage and Collaboration ✓
2. Manage Change ✓
3. Simple/Structured Platform ?
4. Compliance – Capture the Evidence ✓
5. As-Built ?
6. Share/Transferable Information ✗

- H&S issues
- Photos
- Snagging
- Comments
- Meeting Minutes
- Data Structure



SHARE/TRANSFERABLE INFORMATION

Containers Per
Discipline/Document type

Containers Per Apartment

SHARE/TRANSFERABLE INFORMATION

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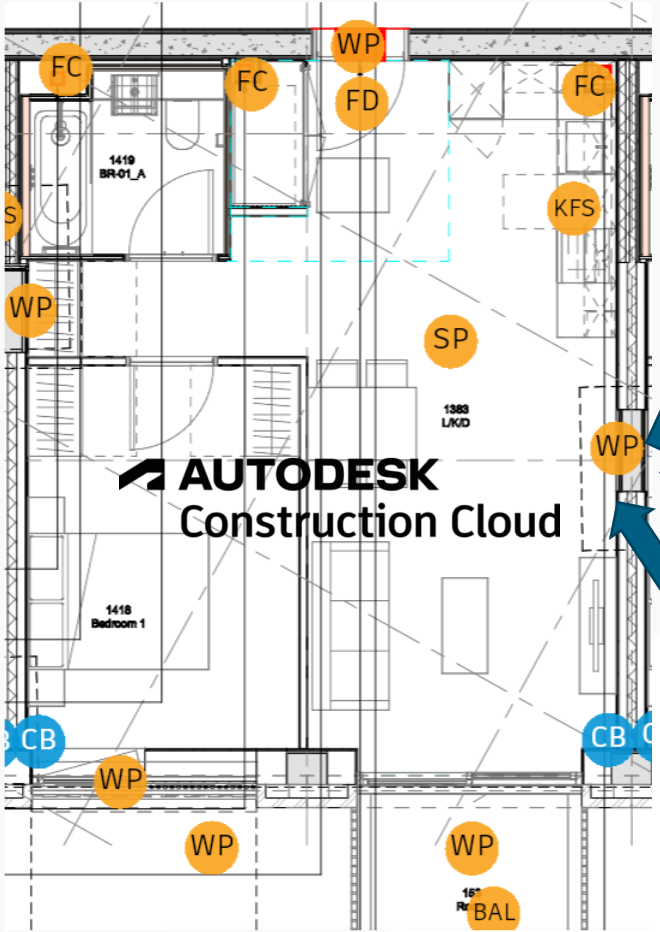

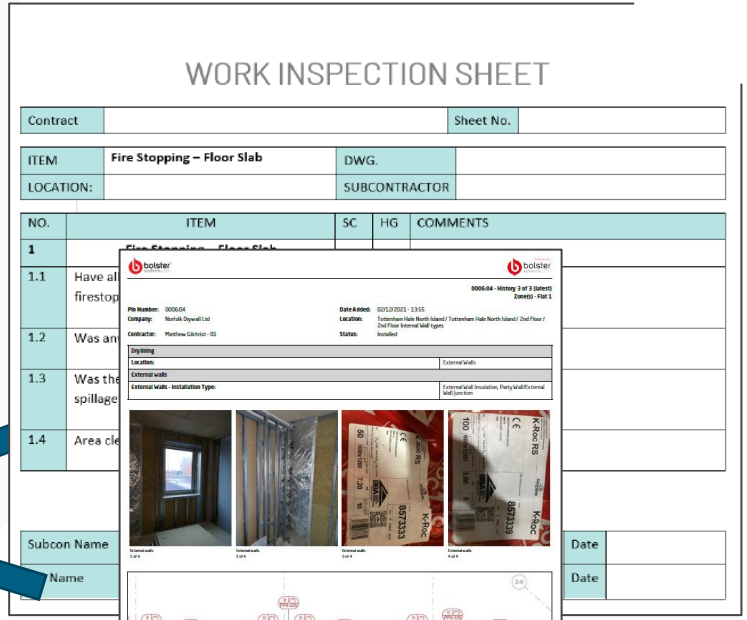

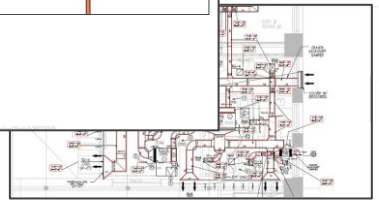

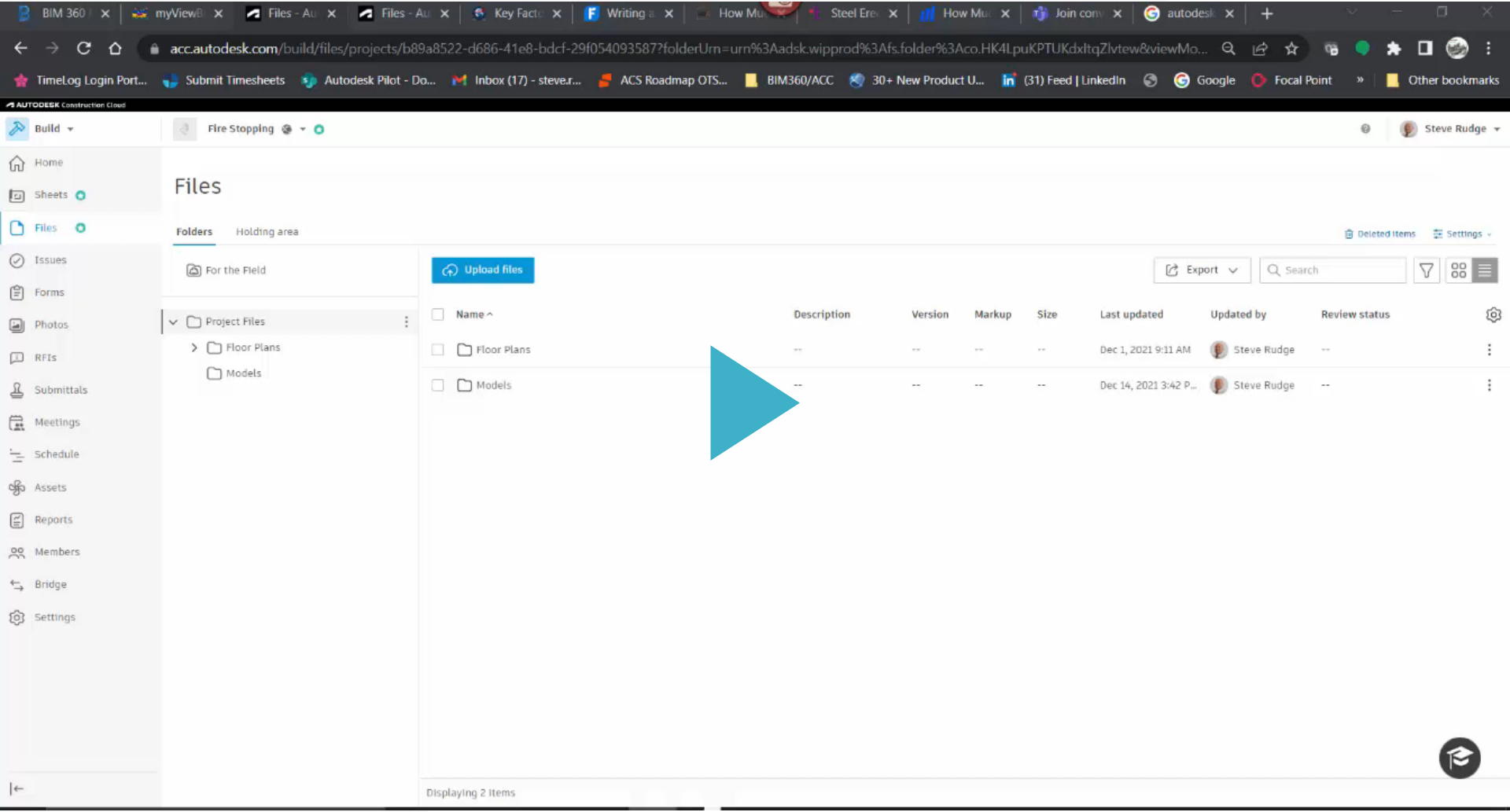
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AUTODESK Construction Cloud
Build
Fire Stopping
Steve Rudge
Home
Sheets
Files
Issues
Forms
Photos
RFIs
Submittals
Meetings
Schedule
Assets
Reports
Members
Bridge
Settings
Files
Folders
Holding area
Deleted items
Settings
For the Field
Project Files
Floor Plans
Models
Upload files
Export
Search
Name
Description
Version
Markup
Size
Last updated
Updated by
Review status
Floor Plans
Dec 1, 2021 9:11 AM
Steve Rudge
Models
Dec 14, 2021 3:42 P...
Steve Rudge
Displaying 2 items

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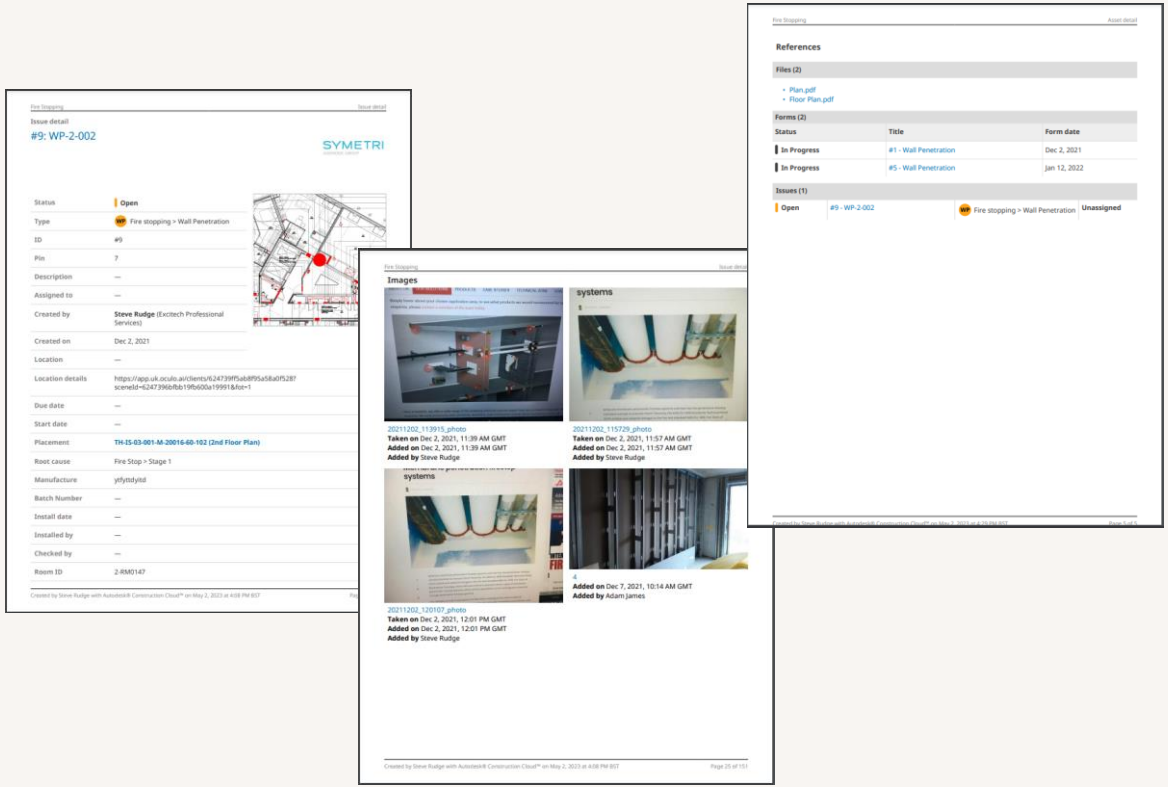
REPORT PER APARTMENT



Issue detail

#9: WP-2-002

Status	Open
Type	Fire stopping > Wall Penetration
ID	#9
Pin	7
Description	—
Assigned to	—
Created by	Steve Rudge (Excitech Professional Services)
Created on	Dec 2, 2021
Location	—
Location details	https://app.uk.oculo.ai/clients/624739ff5ab8f95a58a0f528?sceneId=624739bfbb19f6600a19991&tx=1
Due date	—
Start date	—
Placement	TH-IS-03-001-M-20016-60-102 (2nd Floor Plan)
Root cause	Fire Stop > Stage 1
Manufacture	ytfytdytd
Batch Number	—
Install date	—
Installed by	—
Checked by	—
Room ID	2-RM0147

Images

systems

20211202_113915_photo
Taken on Dec 2, 2021, 11:39 AM GMT
Added on Dec 2, 2021, 11:39 AM GMT
Added by Steve Rudge

20211202_115729_photo
Taken on Dec 2, 2021, 11:57 AM GMT
Added on Dec 2, 2021, 11:57 AM GMT
Added by Steve Rudge

systems

20211202_120107_photo
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Added on Dec 2, 2021, 12:01 PM GMT
Added by Steve Rudge

Added on Dec 7, 2021, 10:14 AM GMT
Added by Adam James

References

Files (2)

- Plan.pdf
- Floor Plan.pdf

Forms (2)

Status	Title	Form date
In Progress	#1 - Wall Penetration	Dec 2, 2021
In Progress	#5 - Wall Penetration	Jan 12, 2022

Issues (1)

Open	#9 - WP-2-002	Fire stopping > Wall Penetration	Unassigned

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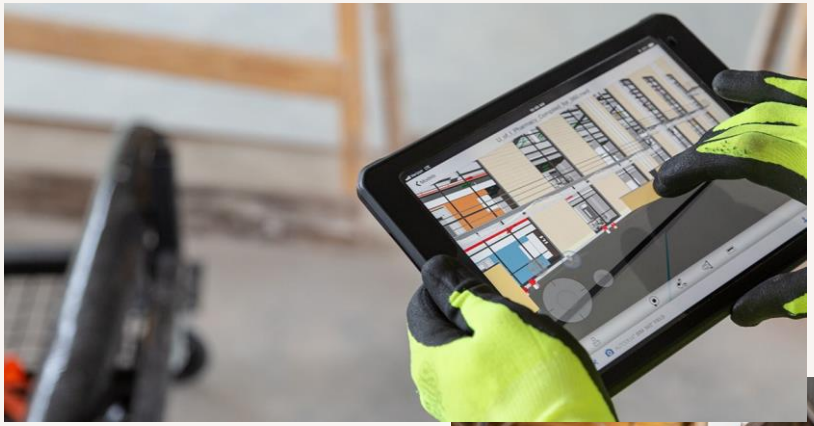
AS-BUILT



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START ON SITE – APRIL 2023

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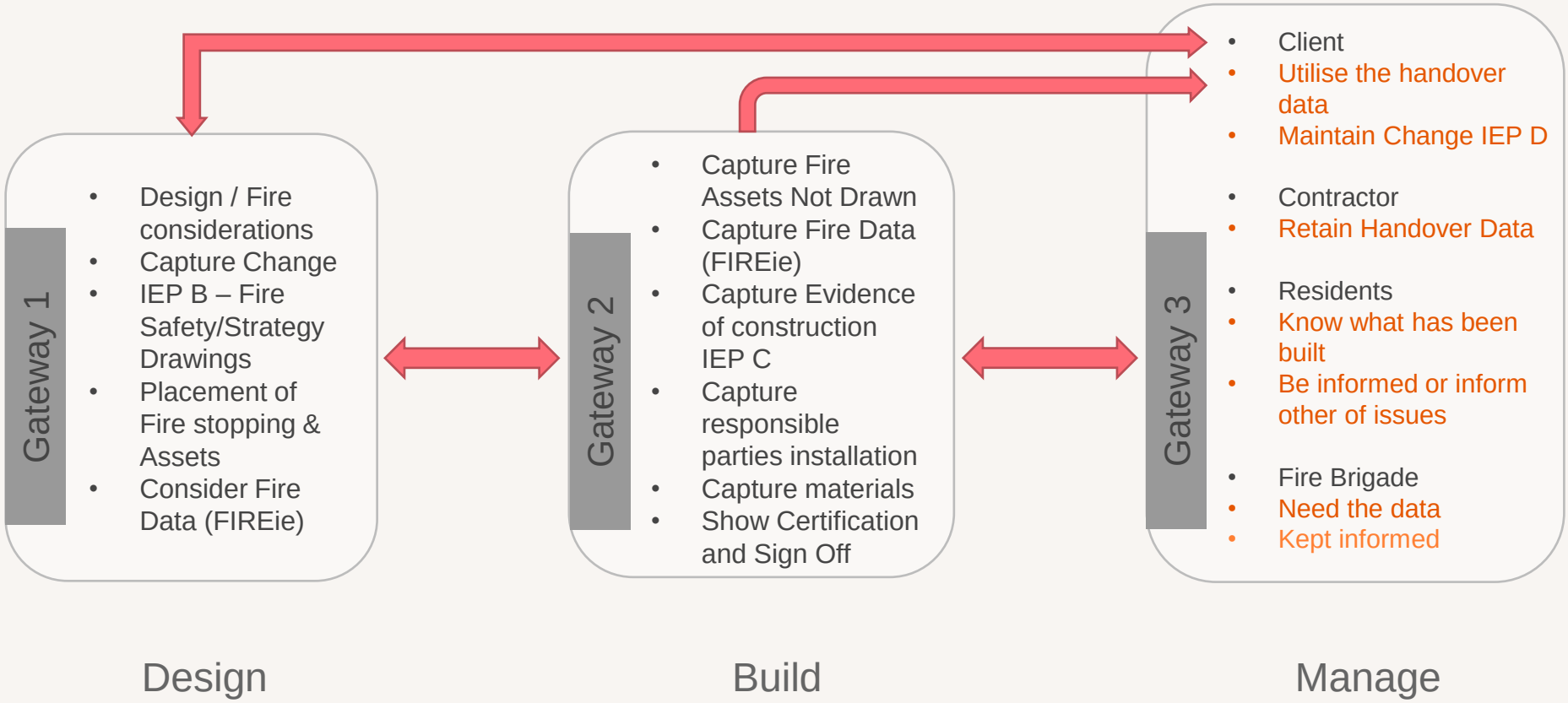
BSA MANDATED REQUIREMENTS

1. Storage and Collaboration
2. Manage Change
3. Simple/Structured Platform
4. Compliance – Capture the Evidence
5. As-Built
6. Share/Transferable Information


Gateway 1
Design / Fire considerations
Capture Change
IEP B – Fire Safety/Strategy Drawings
Placement of Fire stopping & Assets
Consider Fire Data (FIREie)
Gateway 2
Capture Fire Assets Not Drawn
Capture Fire Data (FIREie)
Capture Evidence of construction IEP C
Capture responsible parties installation
Capture materials
Show Certification and Sign Off
Gateway 3
Client
Utilise the handover data
Maintain Change IEP D
Contractor
Retain Handover Data
Residents
Know what has been built
Be informed or inform other of issues
Fire Brigade
Need the data
Kept informed
Design
Build
Manage

DATA & ANALYTICS
WORKFORCE COLLABORATION
DOCUMENT & FILE MANAGEMENT
FINANCIALS & BUDGET MANAGEMENT
MIXED REALITY
SITE & SAFETY MANAGEMENT
REALITY CAPTURE
PROJECT MANAGEMENT
MySQL
PostgreSQL
tomorrow.io
ORACLE DATABASE
Power BI
SQL Server
snowflake
EC3
Jovix
ideate software
amazon REDSHIFT
briq
box
Google Sheets
NBS
Datum360
DODGE DATA & ANALYTICS
boomi
indus.ai
aoms.
amazon S3
Formworks
ZVERSE
signNow
OneDrive
SkillSmart
NAVVIS
DocuSign
SharePoint
goformz
Jitterbit
DOMO
Dropbox
Cloudsfer
Applied Software
INTELLIWAVE
iPlanTables
ProjectReady
servicenow
PROTRAK
bridgit
Pinnacle Series
GREEN BADGER
Office 365
zoom
IBM Watson
myComply
Verifi3D
HipChat
slack
RingCentral
LABORCHART
workday.
citrix Podio
Webex Teams
FieldChat
KitConnect
BECK TECH
voxer
agilis systems
BIMcollab
aurigo
sage Intacct
Confluence
Bridgetown
MORPHEUS
NETSUITE
FRESHBOOKS
nCircle
handle
quickbooks
SMARTBID
Microsoft Dynamics 365
xero
CMiC
salesforce
SIGMA
Intelisys
eyrus
IMAJION
CONSTRUXIV TECHNOLOGIES
VISUAL LIVE
unity Reflect
THE WILD
arvizio
RESOLVE
HOLO BUILDER
triax
Arkio
POINTFUSE
ICI TRACKER
StructionSite
Cintoo
DOXEL
esri
DroneDeploy
xp360
OPENSPACE
vGIS
SENSERA
Datumate
PIX4D
OpticVyu
TRUELOOK
MULTIVISTA
Matterport
OxBlue
WORK ZONE CAM
FARO
RECONSTRUCT
Uplift
FotoIN
NAVVIS
lobster pictures
site eye
EarthCam
CamDo
SITEAWARE
RAKEN
Leica Geosystems
NEWMETRIX
Redpoint Positioning
Versatile Natures
NOTEVAULT
TRUCKIT
BIMrx
AWAIR
TLD
paviasystems
RHUMBIX
FACS
ZOHO
ALLEGION
revizto
QUICK BASE
Airtable
smartsheet
peerassist
DataStreet
SAFETY REPORTS
safesite
Wrike
ACUITE
SUB
freshdesk
REPLICON
asana
myComply
Assignar
NEWFORMA
Bullclip
JIRA
Projectmates
Basecamp
STRATUS
IDAT
Trello
TOPCON
servicemax
NEXVIA
plannerly
SHEETS
REDTEAM
SHEDMATE
zendesk
Pype
SiteSense
MANUFACTON
ZTERS
REDLIST
dotas
extracker
hsbshare
DOT PRODUCT
buildup

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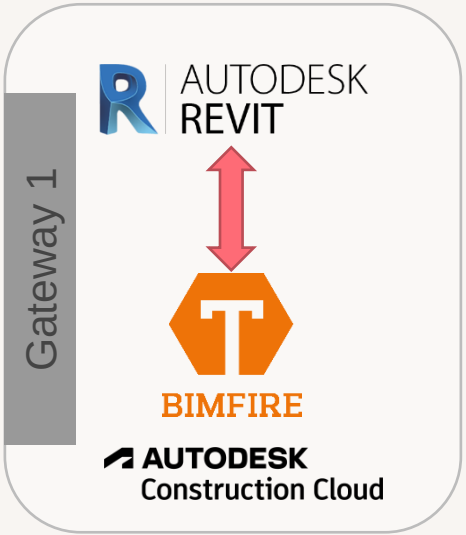
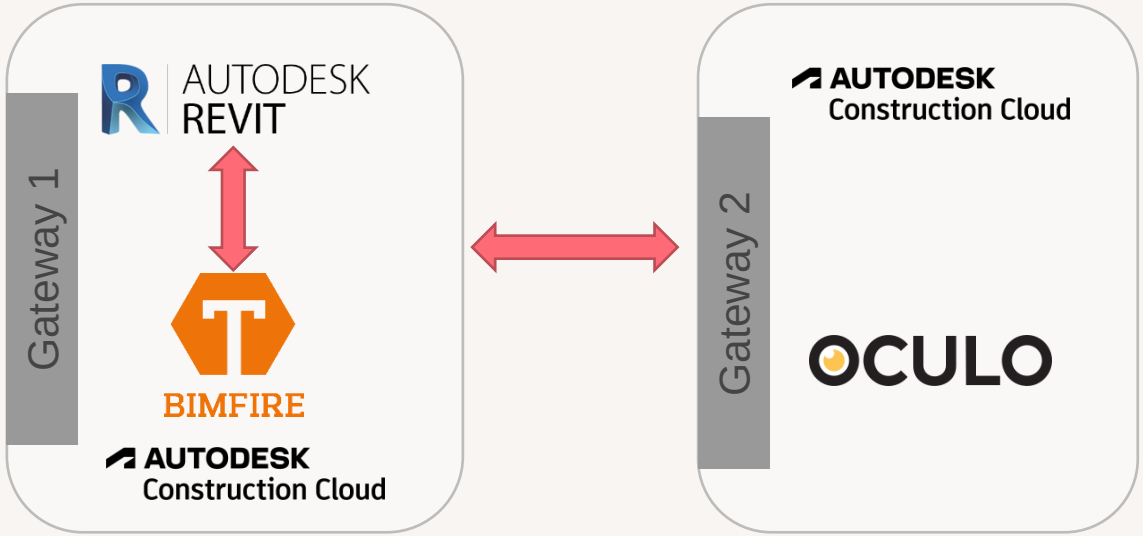


Design

Build

Manage

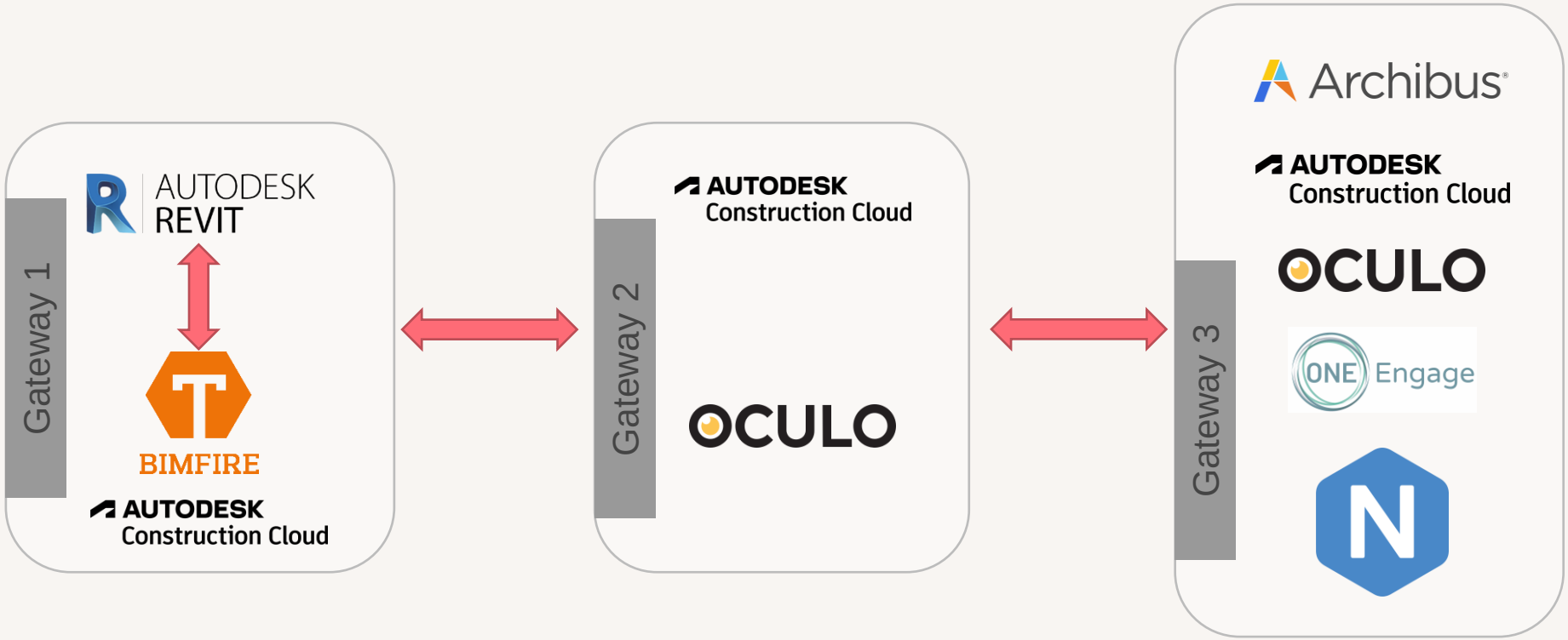


Design

Build

Manage

SYMETRI
ADDNODE GROUP

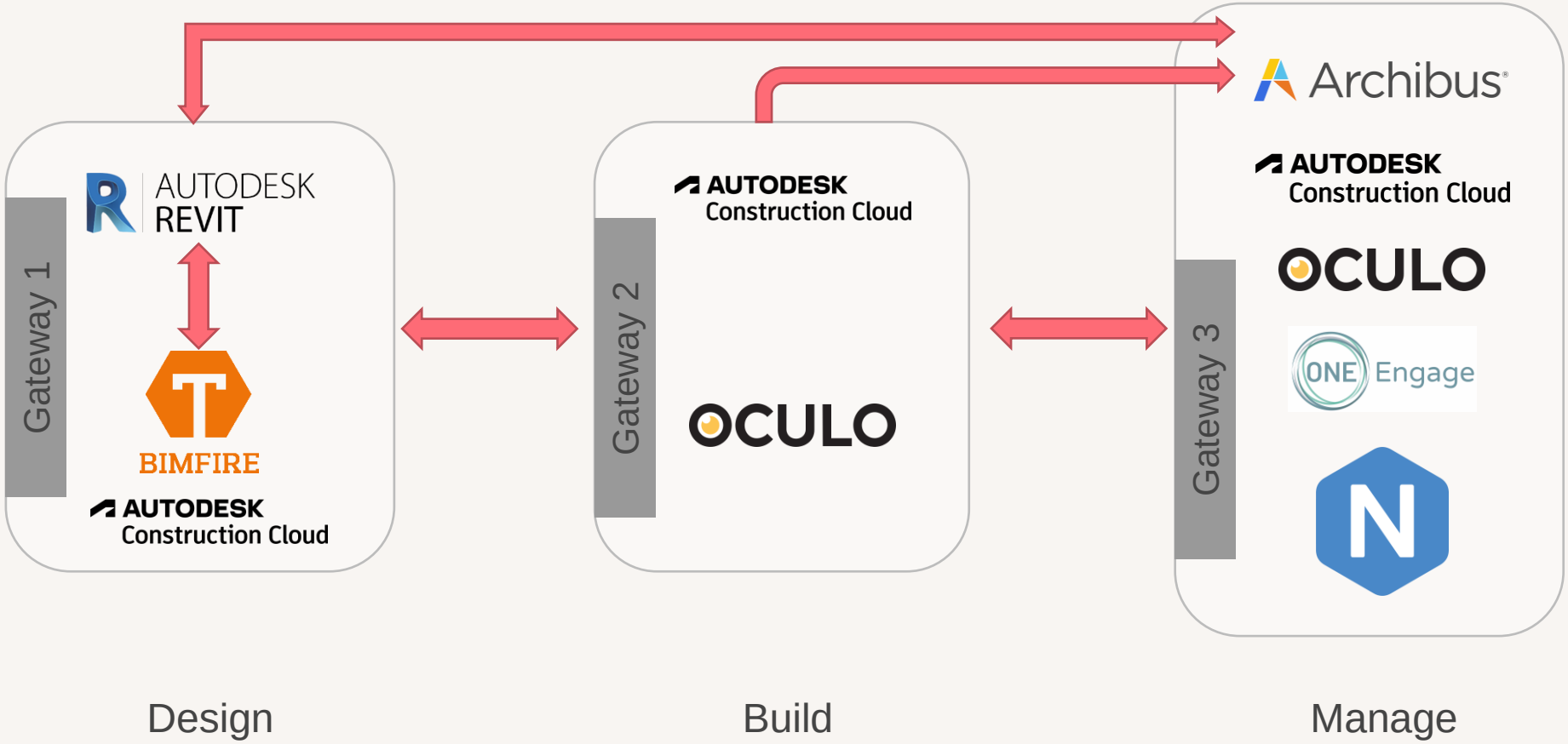


Design

Build

Manage

SYMETRI
ADDNODE GROUP



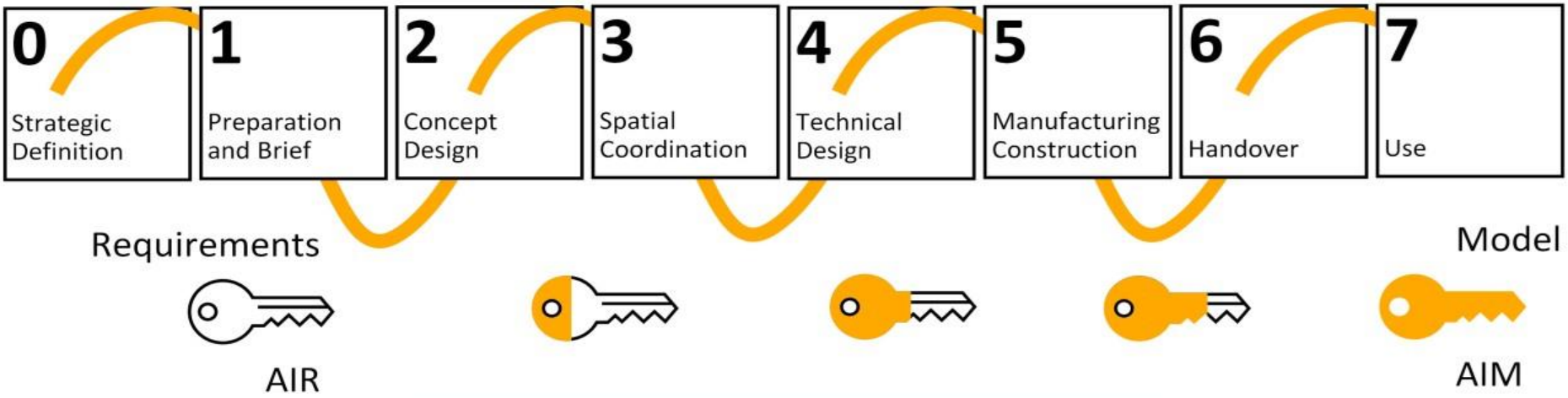
Design

Build

Manage

The Golden Thread

SYMETRI
ADDNODE GROUP



Asset Information Requirements

Project Information Model

Digital O&M

AIM

Manufacturer Product Library

Standard Libraries and Validation

Digital Construction Design Management, Health and Safety, Operating and Maintenance

Building Standards and Regulations

Fire Safety Act

SYMETRI
ADDNODE GROUP

acc.autodesk.com/docs/files/projects/c2da5a25-8c88-48e7-ba80-ec20e89994a7?folderUrn=urn%3Aadsk.wipprod%3Afs.folder%3Aco.TwiDaV2PSpWl4tQzvQRpTA&viewM...

TimeLog Login Port... | Submit Timesheets | Autodesk Pilot - Do... | Inbox (17) - steve.r... | ACS Roadmap OTS... | BIM360/ACC | 30+ New Product U... | (31) Feed | LinkedIn | Focal Point | Google | Other bookmarks

AUTODESK Construction Cloud

Docs | Unified Platform SRU | Steve Rudge

- Files
- Reviews
- Transmittals
- Issues
- Reports
- Members
- Bridge
- Settings

Files

Steve, manage your project's files here

Organize your files with folders and permissions, search files and folders, share with anyone.

Take the tour | Learn more | Register for course

Folders | Holding area

Deleted items | Settings

- Project Files
  - 0 - WIP
  - 1 - Shared
  - 1. Russel...
  - 2 - Publi...
  - 3 -Archiv...
  - As-built ...
  - BID Pack...
  - Clash Mo...
  - Drawings
  - HR
  - Informat...
  - London s...
  - Models

Upload files | Export | Search and filter

Name	Description	Version	Synced with Bridge	Markup	Shared	Size	Last updated	Updated by	Revie
0 - WIP	--	--		--	--	--	Mar 9, 2022 9:13 AM	Steve Rudge	--
1 - Shared	--	--		--	--	--	Apr 27, 2021 2:27 PM	Steve Rudge	--
1. Russell's Demo Files	--	--		--	Shared	--	Oct 11, 2022 10:41 ...	Ryan Holland	--
2 - Published	--	--		--	--	--	Apr 27, 2021 2:28 PM	Steve Rudge	--
3 -Archived	--	--		--	--	--	Apr 27, 2021 2:28 PM	Steve Rudge	--
As-built data	--	--		--	--	--	Feb 26, 2021 1:15 PM	Steve Rudge	--
BID Packages	--	--		--	--	--	Mar 16, 2021 3:19 P...	Steve Rudge	--

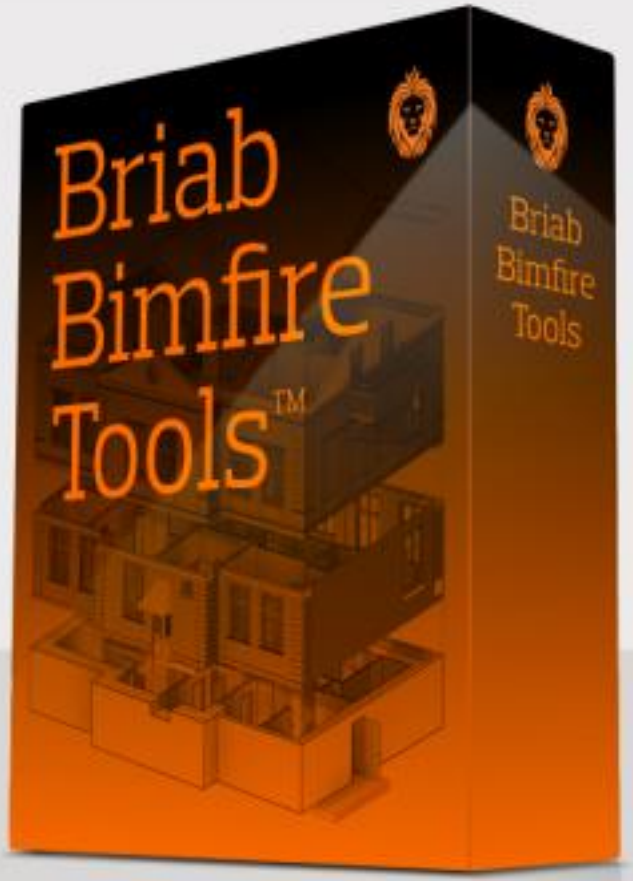
Showing 19 items

SYMETRI
ADDNODE GROUP

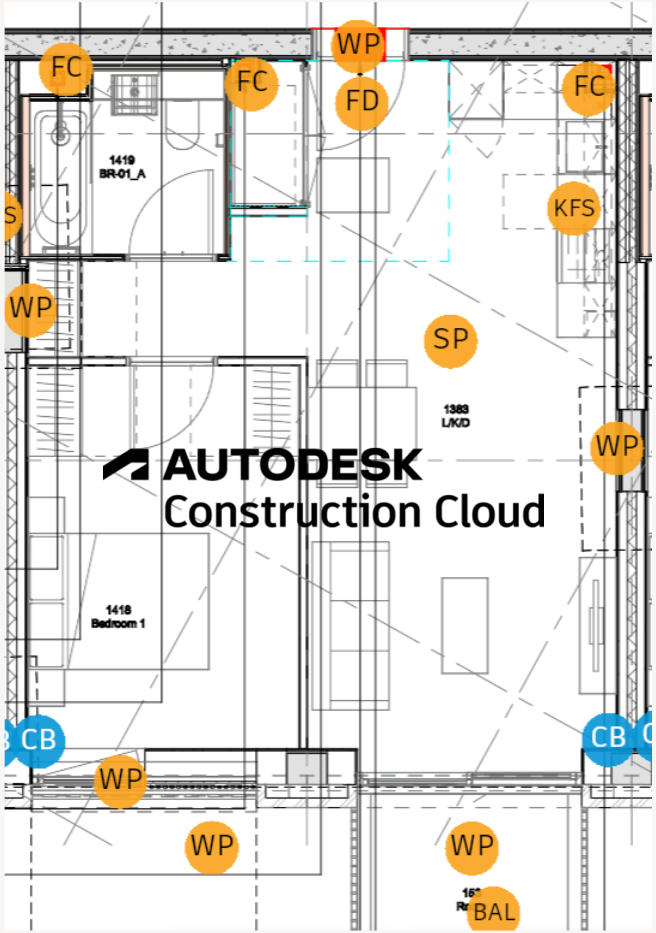
Briab Bimfire Tools™ for Revit users

Breakthrough digital work process efficiency in fire safety design that lets you integrate fully with the BIM process.

Read more >>



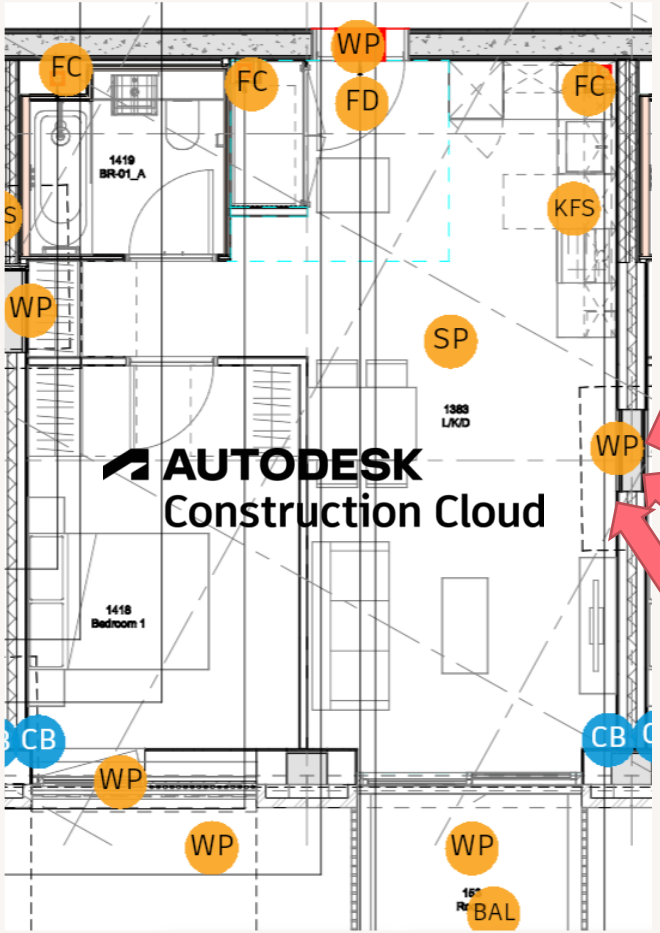
SYMETRI
ADDNODE GROUP



BIMFIRE

ASSETS

ISSUES



WORK INSPECTION SHEET

Contract		Sheet No.	

ITEM	**Fire Stopping – Floor Slab**	DWG.	
LOCATION:		SUBCONTRACTOR	

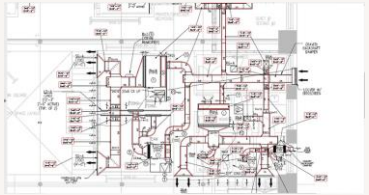
NO.	ITEM	SC	HG	COMMENTS
1	**Fire Stopping – Floor Slab**			
1.1	Have all floor and soffit penetrations been firestop according to approved method?			
1.2	Was any ad-hoc method used?			
1.3	Was the Floor below checked for any spillage and/or cleaned?			
1.4	Area cleaned and ready for next trade			

Subcon Name		Signature	
HG Name		Signature	

OCULO

1 123456 654326

FIRE STOPPING:
DO NOT ALTER OR CUT THIS FIRE SEAL WITHOUT PERMISSION. DAMAGE MUST BE REPAIRED IMMEDIATELY.
WARNING - DO NOT REMOVE
Date Installed:
Hr Rating:
Location Reference:



SYMETRI
ADDNODE GROUP

WORKING TOWARDS A NEW WAY OF DOCUMENTING AND MONITORING SITE WORK

SYMETRI

SYMETRI
ADDNODE GROUP

FEATURES - FLOORPLAN NAVIGATION

Navigate within a scene using the arrow buttons

Each of the points on the plan connect to an up to date 360° site view, and can be used to teleport between scenes using the Floorplan View or the MiniMap

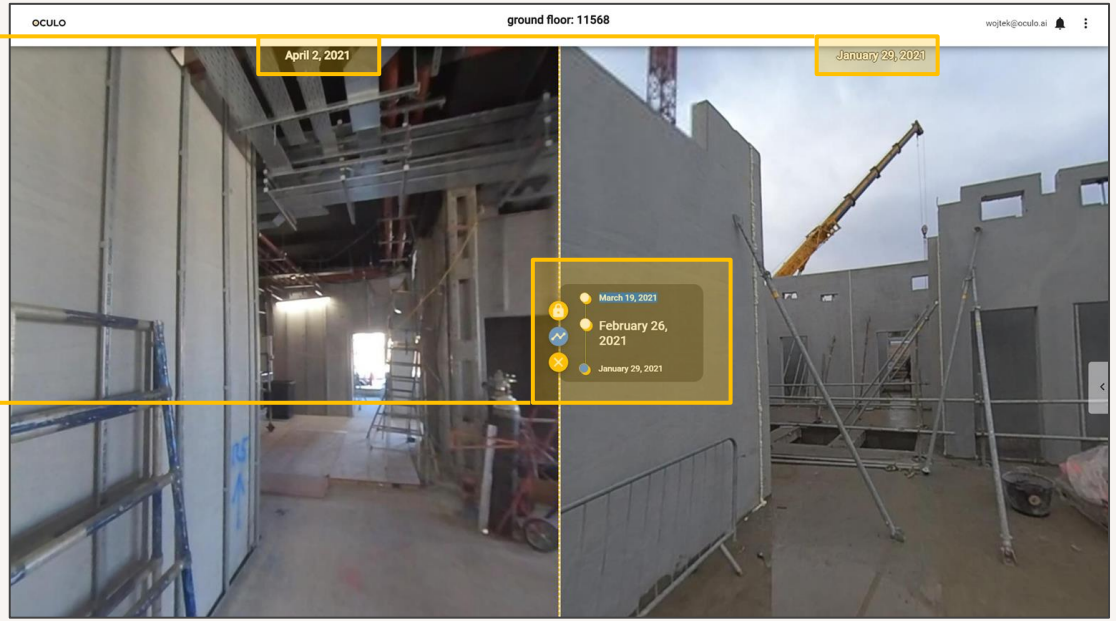
OCULO

SYMETRI
ADDNODE GROUP

FEATURES - SIDE BY SIDE VIEW

Scenes viewed in Side by Side are time stamped according to the scan date

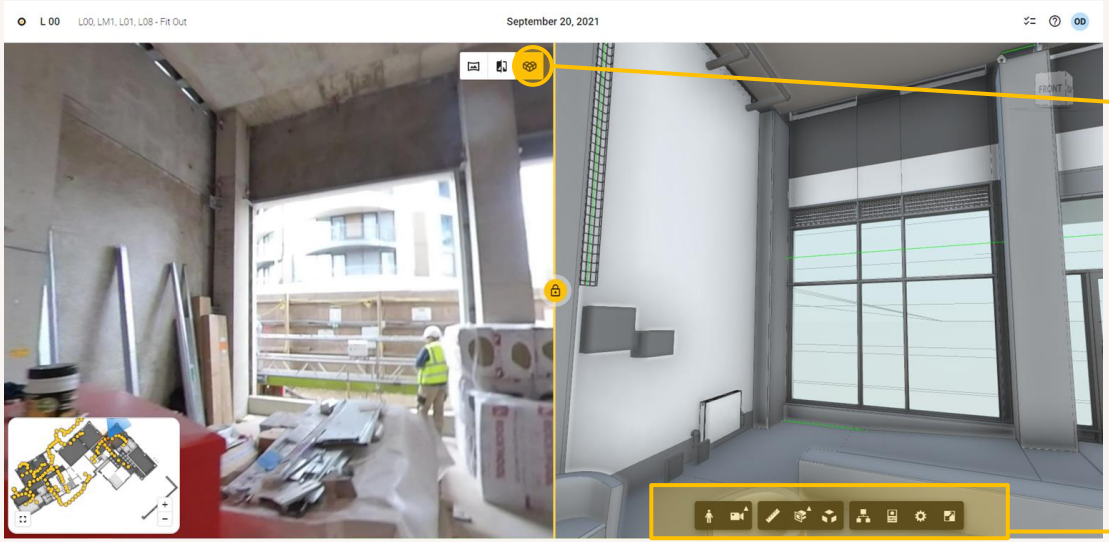
Travel through time by selecting the scan date from the Scan Timeline



OCULO

SYMETRI
ADDNODE GROUP

FEATURES - BIM SIDE BY SIDE VIEW



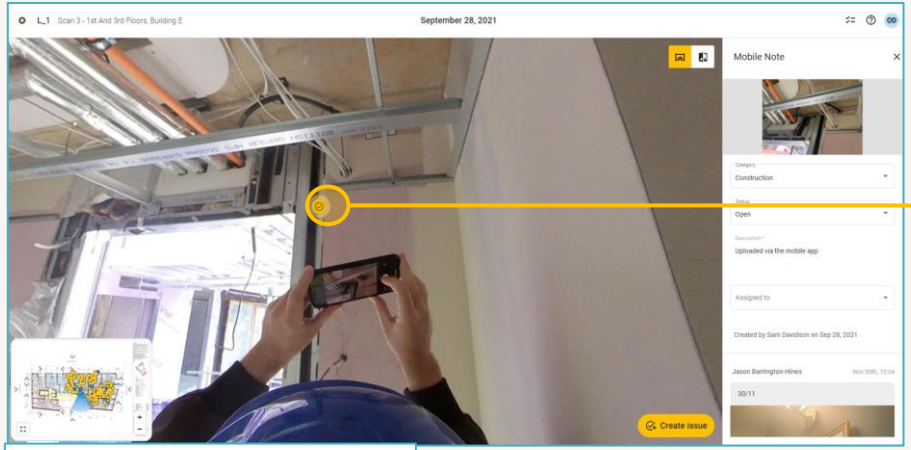
One click connection to BIM model for any scene in the Virtual Jobwalk, with synchronised navigation within the 360° frame

Maintain all the functionality from your BIM toolkit

OCULO

SYMETRI
ADDNODE GROUP

FEATURES - AUTOMATICALLY PIN DETAILED PHOTOS



Photos captured via the Oculo Mobile App during a job walk are automatically pinned to the location at which they were taken

Using mobile cameras allows the capture of high resolution images only where required, such as asset tags, without sacrificing scan time or causing a significant increase in hardware costs

OCULO

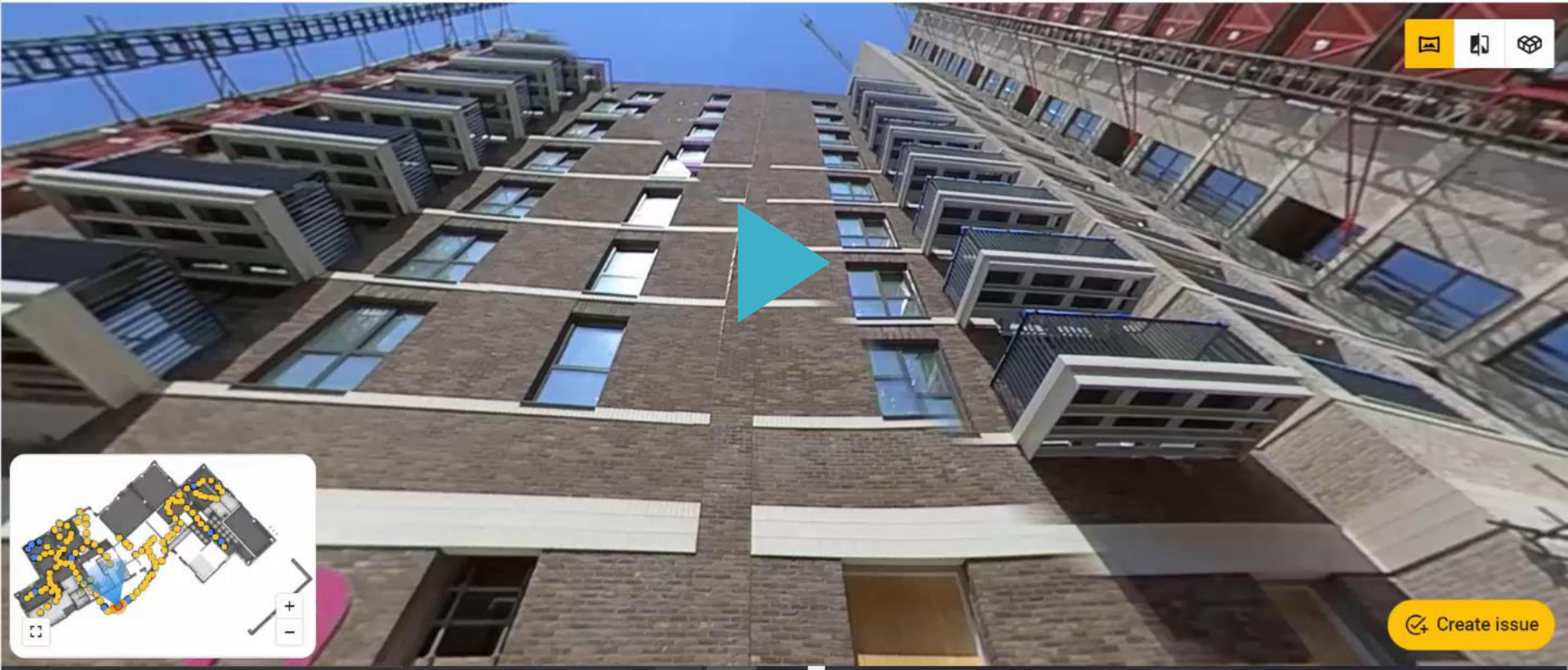
SYMETRI
ADDNODE GROUP

OCULO

L 00

July 19, 2021

SR



Create issue

Type here to search

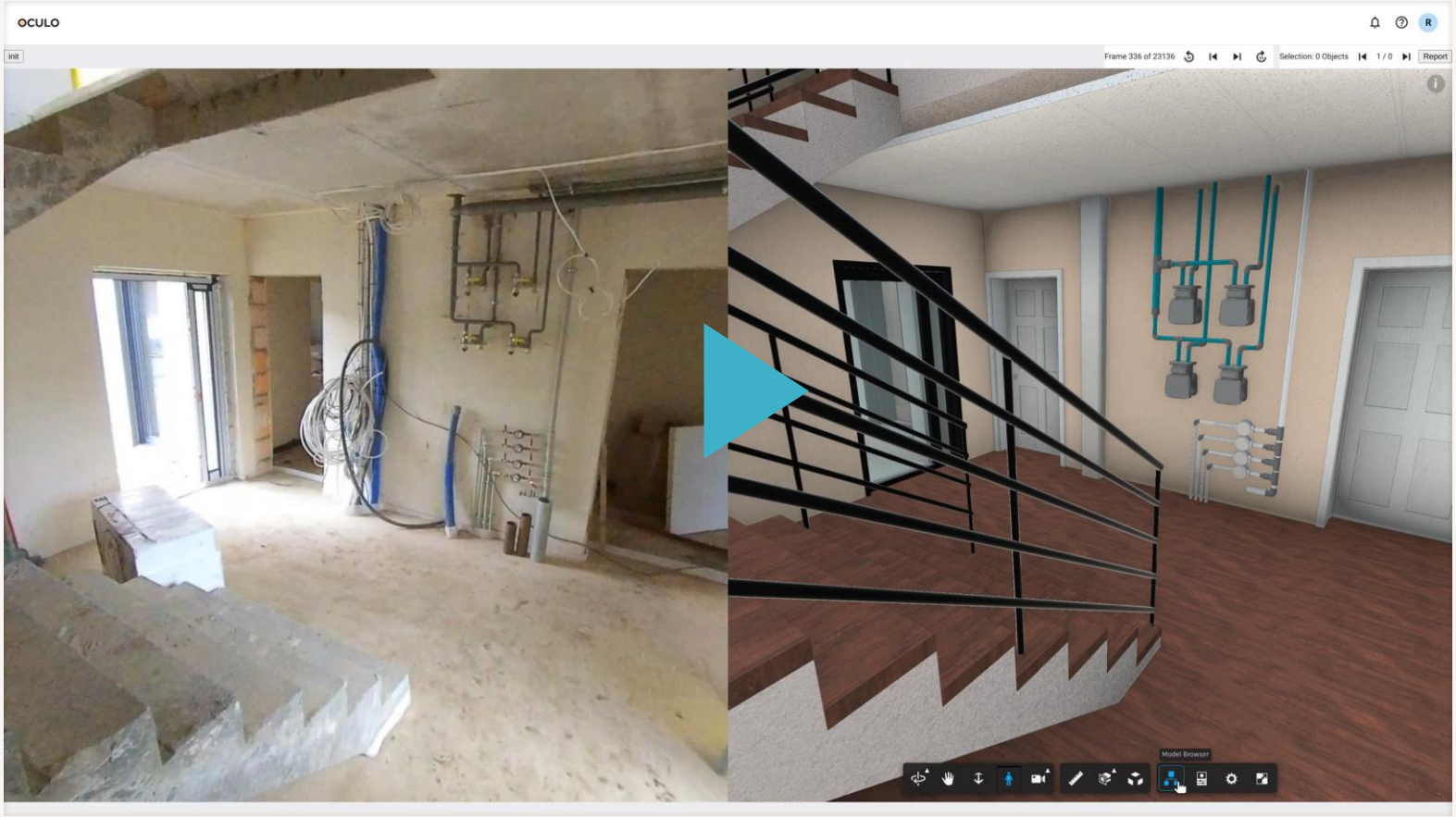
Misc BIM 2016 2017 2018 2019 2020 2021

ENG

10:04
10/11/2021

MODEL BROWSING ASSETS

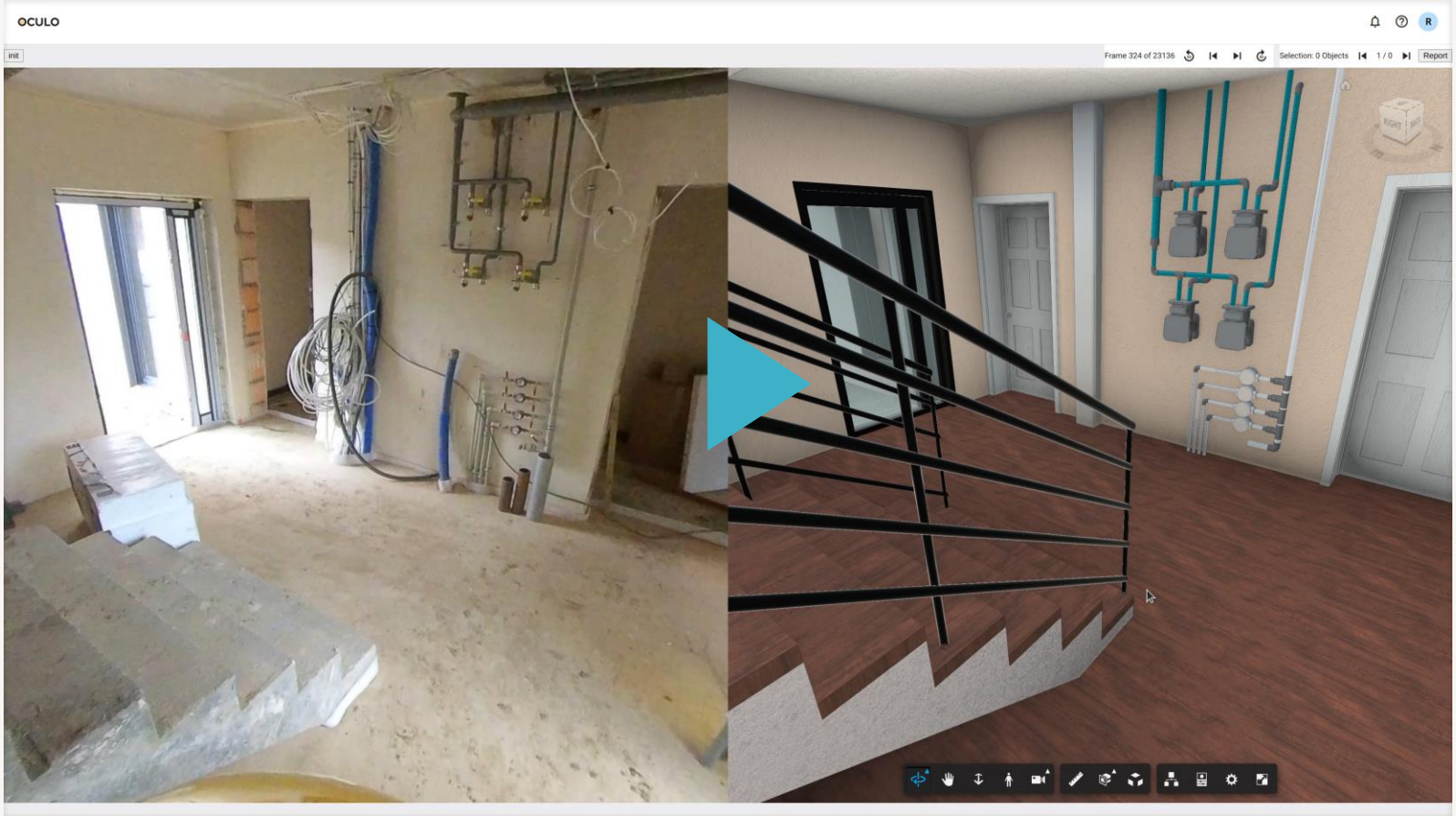
SYMETRI
ADDNODE GROUP



OCULO

ASSET REPORT & PROGRESS

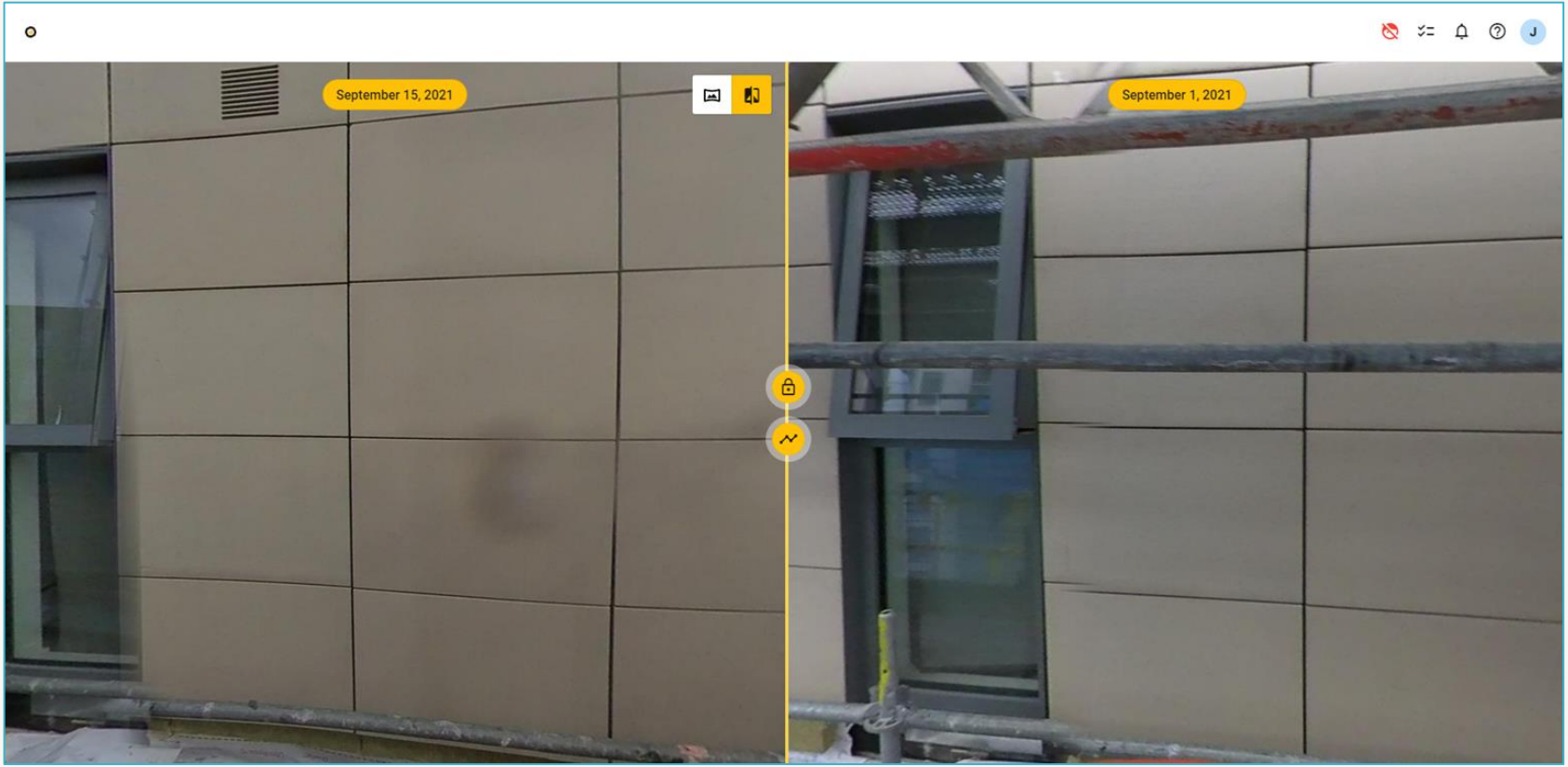
SYMETRI
ADDNODE GROUP



OCULO

EXTERIOR CLADDING - 1

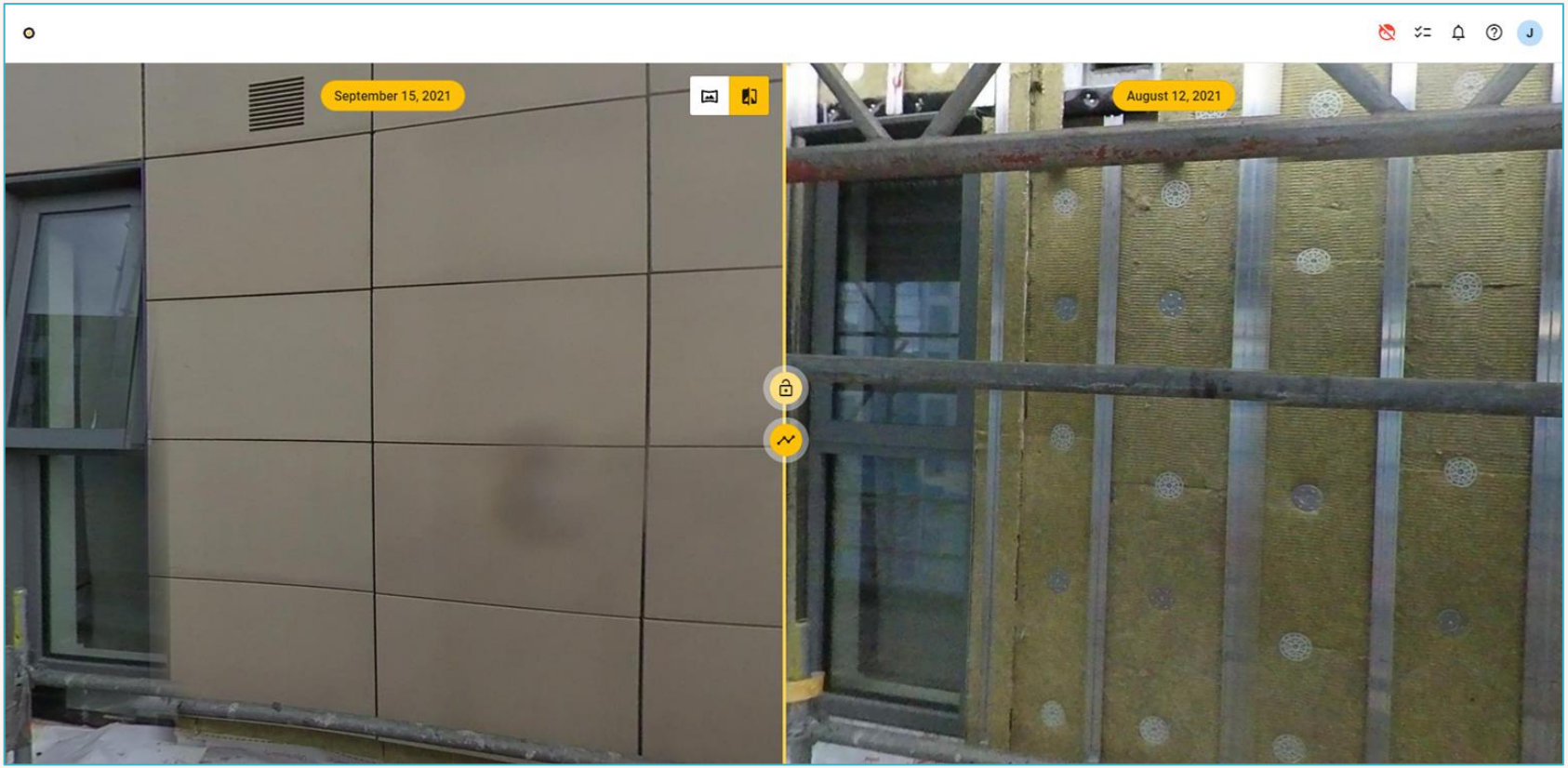
SYMETRI
ADDNODE GROUP



OCULO

EXTERIOR CLADDING - 2

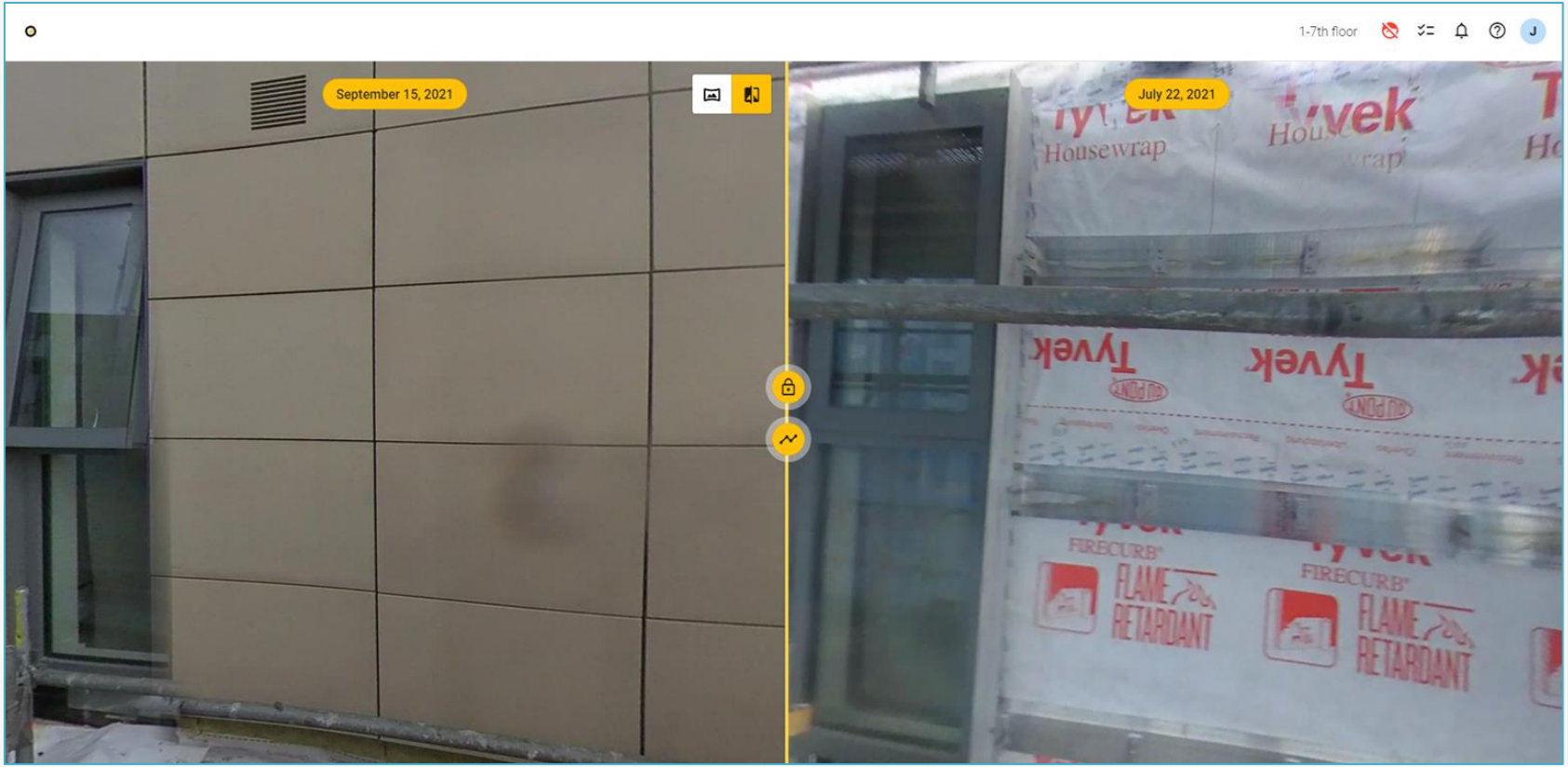
SYMETRI
ADDNODE GROUP



OCULO

EXTERIOR CLADDING - 3

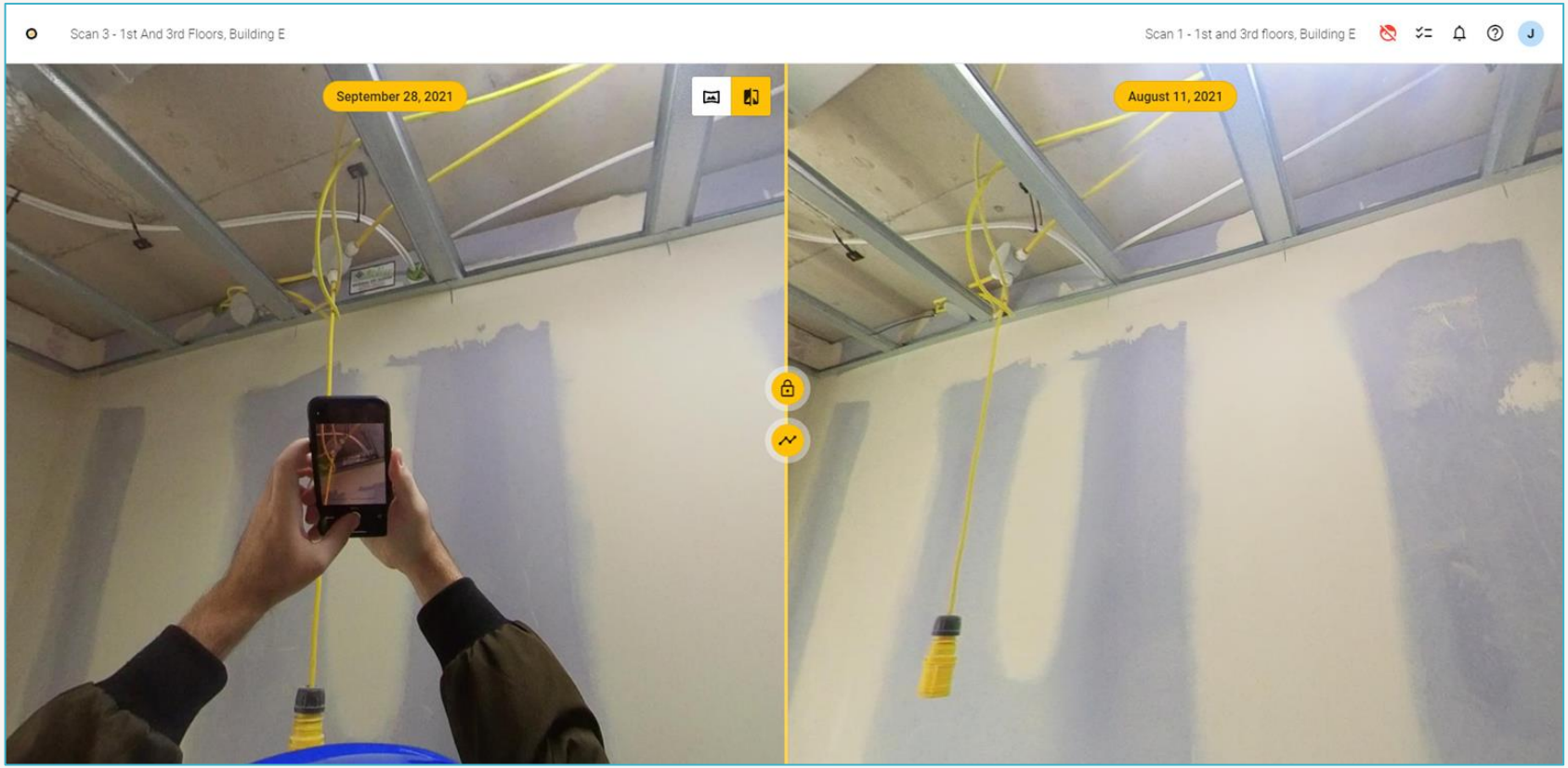
SYMETRI
ADDNODE GROUP



OCULO

FIRE STOPPING - 1

SYMETRI
ADDNODE GROUP

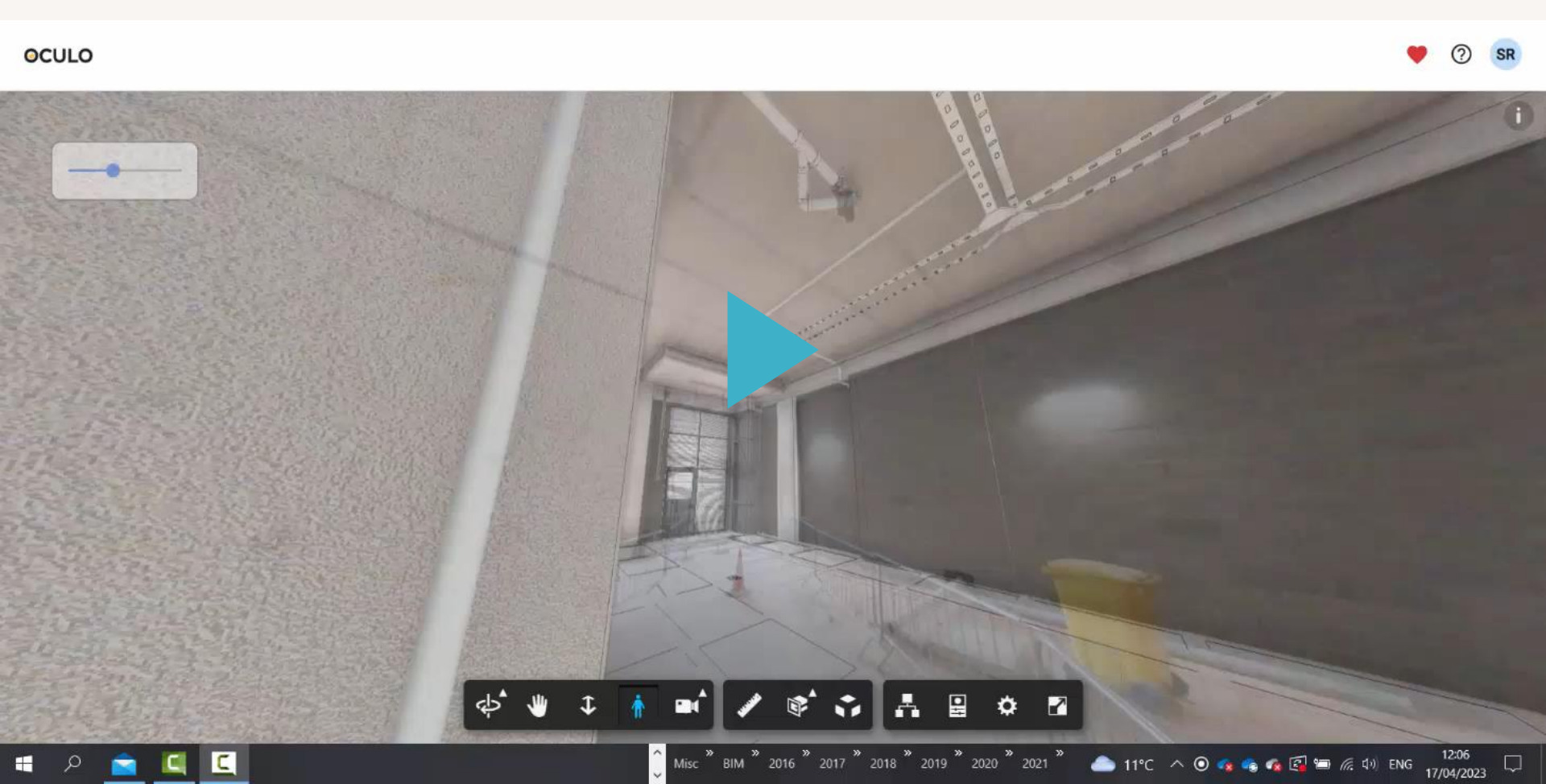


OCULO

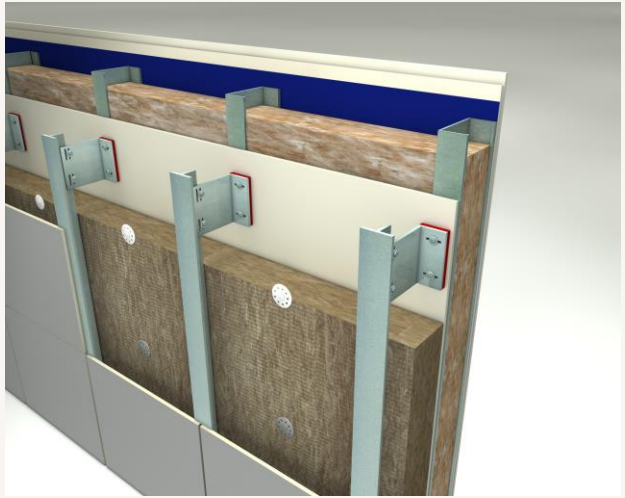
SMART PHOTO CAPTURE

SYMETRI
ADDNODE GROUP

OCULO


OCULO
SR
Misc
BIM
2016
2017
2018
2019
2020
2021
11°C
ENG
12:06
17/04/2023

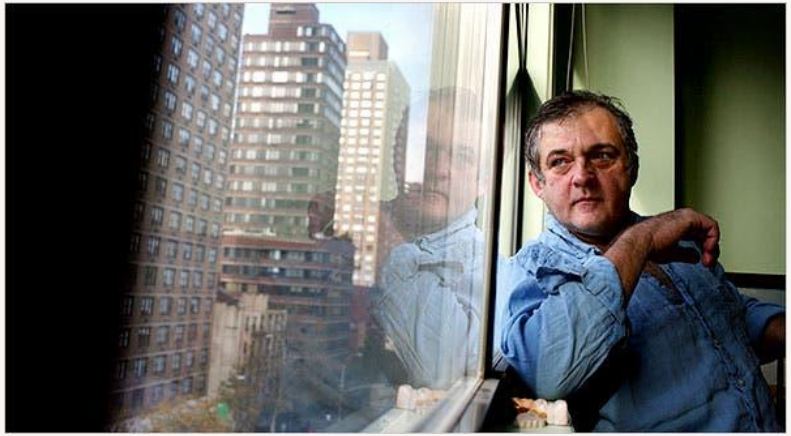
SYMETRI
ADDNODE GROUP



Evidence

Supporting Information

Retained for 12-15 years



WORK SMARTER
WITH SYMETRI

SYMETRI

ADDNODE GROUP

steve.rudge@symetri.com
@steverudge
07734328302