



# Trimble Connect

Connecting Field to Office



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Miron, Southbase, McCorvey finding issues before they are problem



# 01

## Introduction

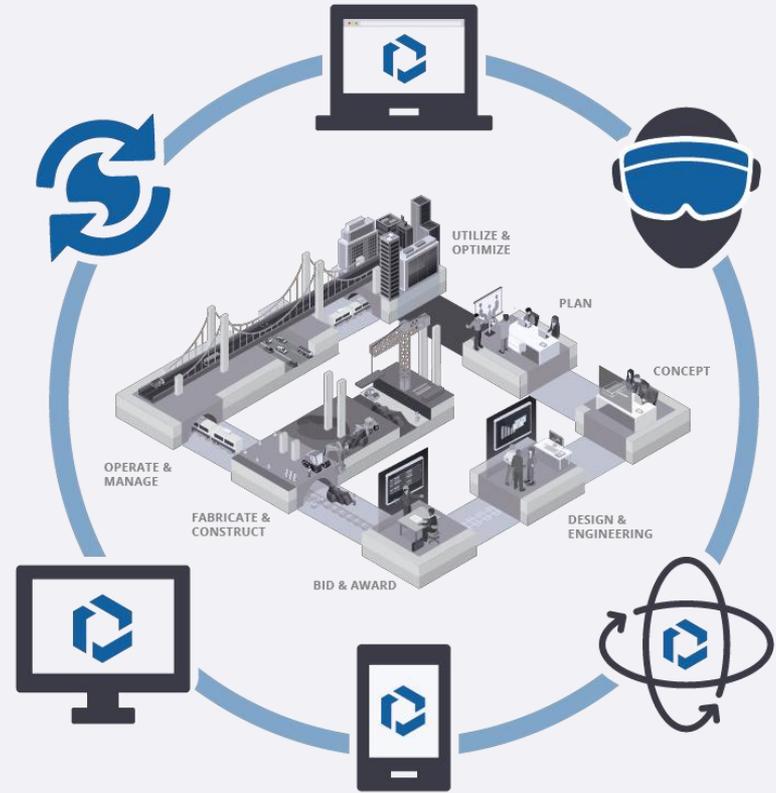
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What is Trimble Connect?



***“Trimble Connect** is a common data environment (CDE) and open collaboration platform that connects the right people to the right data at the right time.”*

*Many Trimble software users utilize Trimble Connect already and this is a differentiator for our hardware division.*



*Our productive combination of client **tools and applications** provide a continuous experience for optimal collaboration and productivity.*



### Web Browser Application

- Project creation and administration
- 2D & 3D viewing



### Windows Application

- Highest 3D graphics performance for the largest models
- Workflow integration with sequencing for HoloLens



### Mobile Application

- Optimized UI for small-screen, touch-screen operation
- Empowering field users for productivity



### AR+MR Applications

- Augmented Reality visualization (works with your IOS or Android mobile device)
- Mixed Reality visualization (works with Trimble XR10 or HoloLens 2)



### Visualizer Tool

- Innovative Virtual Reality solution



### Sync Tool

- Keeps files synchronised with multiple projects in Trimble Connect



# Building Construction Field Systems



Field Layout

3D Capture

Mixed Reality

Construction Robotics

Design



Trimble Connect

As-builts,  
Issues



# Model Formats

- IFC (2x3), IFC ZIP (.ifcZIP), IFC XML (.ifcXML)
- DWG (.dwg - AutoCAD 2013 and below)
- TRB
- SKP
- RVT (Revit 2019 and later)\*
- Tekla (.tekla)
- NWC, NWD\*\*



\* Revit files can be added to the project on the project page in Trimble Connect for Windows, or using the Trimble Connect for Revit add-in.

\*\* The Navisworks integration is still in Beta phase. During the Beta phase, some models might not be rendered correctly, or some properties might be incomplete.



# Views, Todos, & Annotations

The screenshot displays a software interface for managing technical drawings. The main window shows a drawing titled 'Approved\_Construction\_Set1.pdf' with a red-shaded area indicating a 'ToDo' item. The drawing includes labels such as 'INSIDE OF STRINGER', 'A', 'B', 'C', 'T.O.C. EL. = 100.0', 'HR8700 HSS1.500x0.1875', 'ST8602 MC12X10.6', 'HR8701 HSS1.500x0.1875', and 'ST8604 MC12X10.6'. The interface features a 'ToDo' list on the left, a 'Details' panel on the right, and a navigation bar at the bottom.

**ToDo List:**

- Please update drawing  
Due date: --  
Unassigned
- Test  
Due date: --  
Unassigned
- test  
Due date: --  
Unassigned
- New todo  
Due date: --  
Assigned To Mala Gosakan, Archit...
- link test 3  
Due date: --  
Unassigned
- todo links 2  
Due date: --  
Assigned To Laura Anne Niemuth
- asd  
Due date: --  
Unassigned
- sdfg  
Due date: --  
Unassigned
- todo  
Due date: --  
Unassigned

**Details Panel:**

**FOSS-18**  
Please update drawi...

**Details**

Description  
These specs are out of date

Assigned To  
--

Status  
New

Due date  
--

Completion %  
0

Priority  
Critical

Type  
--

Created  
Mar 29, 2021 By Laura Cook

Modified  
Mar 29, 2021 By Laura Cook

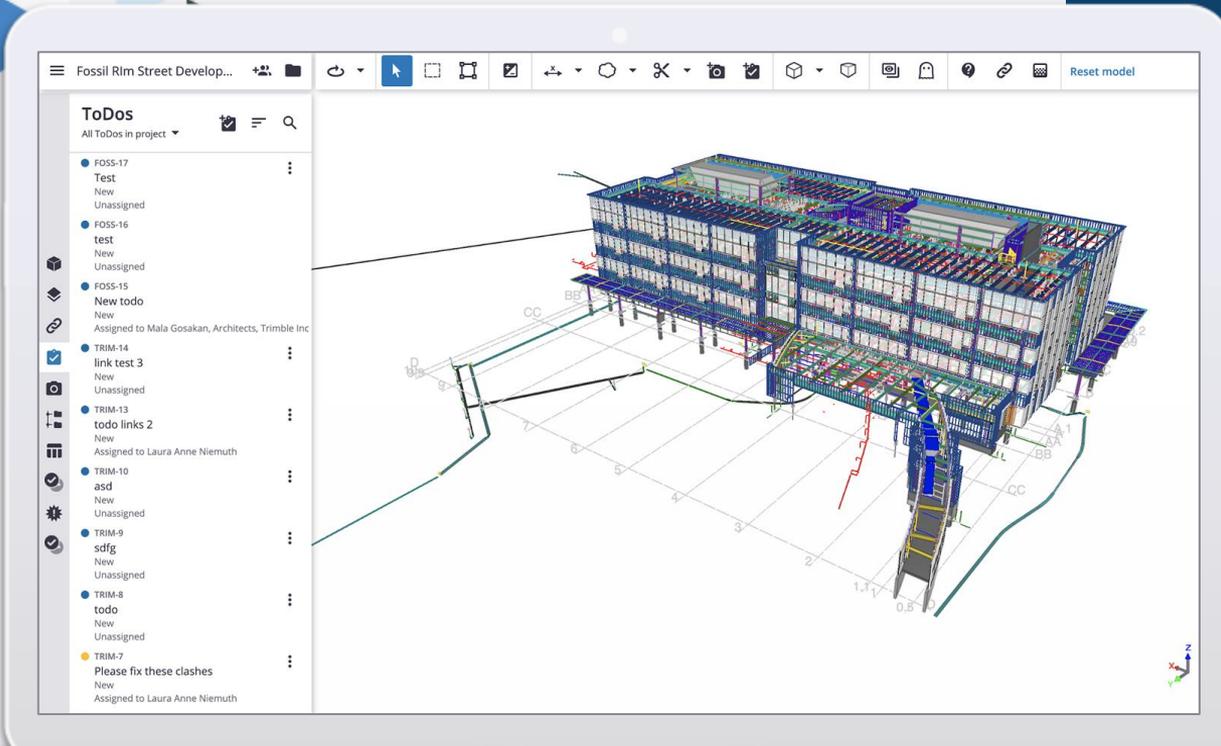
**Attachments** +

+ Add a comment...

- Projects, Data, Folders
- File Versioning
- Permissions
- Upload & Download
- Invite Users
- Teams / Groups
- Comments
- 2D Viewer
- 3D Viewer
- Clashsets
- Todos, BCF Topics
- Views
- Annotations
- Associated Data
- Activity Feed
- Email Notifications
- Project Settings
- Releases
- Offline Capable
- Analytics
- Tags



# Views, Todos, & Annotations



- Projects, Data, Folders
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# 02

## Constructible Workflows

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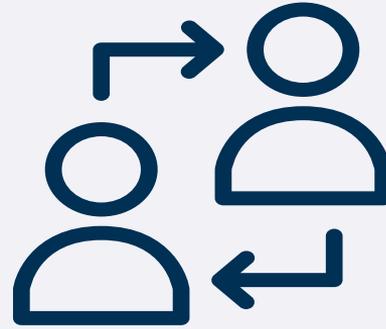
Integrating with Trimble Connect for  
Improved Project Workflows



# Seamless Integration

Its seamless integration within the Field software make Trimble Connect a valuable tool within its Connected Construction Goals. We use it for more than just a cloud storage space.

- Use it for QA/QC purposes in the field.
- Use it as a daily report log on what the field users layout day to day.
- Use it to help keep up with the revision histories.



# How to Transfer?

- Connect Sync
  - Set to automatically sync
  - Push/pull rule setting
- FieldLink Save As full project
- OneDrive or other folder sync
- Data: SIM card, hotspot or trailer WiFi

The screenshot displays the 'Trimble Connect Sync' application window. The title bar shows the application name and standard window controls. The main content area is titled 'Advanced' and features a 'Multiple Robots' section with a robot icon, indicating '46.91 MB on server' and a sync time of 'as on September 26, 2023 08:54 PM'. Below this, a 'Schedules' section includes a '+ Add Sync Schedule' button and a list of three sync schedules: 'Full Project Sync', 'New schedule1', and 'Upload all points'. Each schedule entry shows its 'When' setting (Manual), local and server paths, and a 'Sync' button.

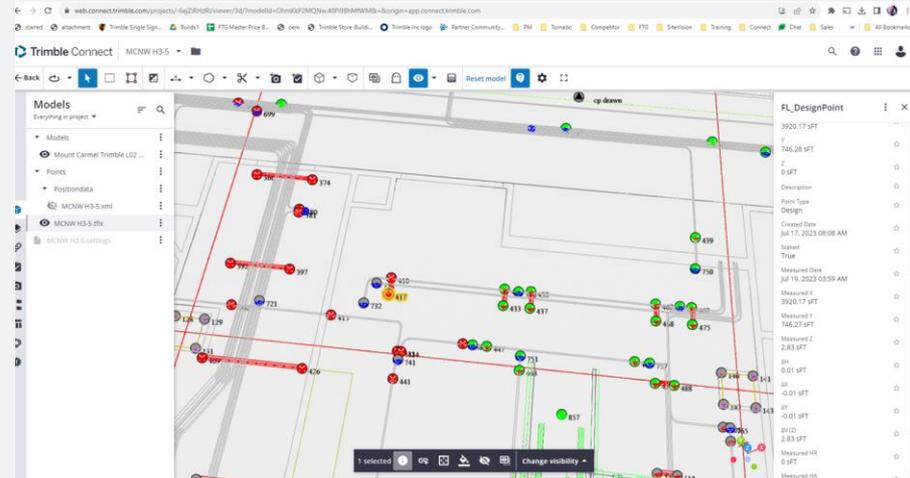
Schedule Name	When	Local Path	Server Path	Advanced	Sync
Full Project Sync	Manual	C:\Users\sostrow\Documents\FieldL...	/Multiple Robots	Folders	Sync
New schedule1	Manual	C:\Users\sostrow\Documents\FieldL...	/Multiple Robots		Sync
Upload all points	Manual	C:\Users\sostrow\Documents\FieldL...	/Multiple Robots	Folders	Sync



# TFLX Files

See layout progress in real-time on Connect

- View what has and hasn't been laid out
  - Mobile, web or desktop
  - Any user (free, business, premium)
- Green indicates it was laid out within tolerance and red outside
- Field Reports, layout reports, inspection, etc are all transferred.



# Data Tables

The Data Table is a tool that allows to colorize, sort, order and filter objects based on object attributes. Sort based on:

- Staked/layout status, time, horizontal offset, X,Y,Z, layer, etc
- Save table across projects
- Export CSV/excel for Pivot sort

The screenshot shows the Trimble Connect 3D Viewer interface. The top part displays a 3D model of a construction site with various objects highlighted in yellow and red. A toolbar at the top includes navigation and tool icons. Below the 3D view, a data table is displayed, showing a list of selected objects with their attributes. The table is titled "View content for: Selected objects" and has a "GROUP BY" dropdown set to "Model". The table columns are: Model > Name > Staked, Count, Name, ΔH, ΔV, MeasuredDate, MeasuredX, MeasuredY, and MeasuredZ. The table shows a total of 1246 objects.

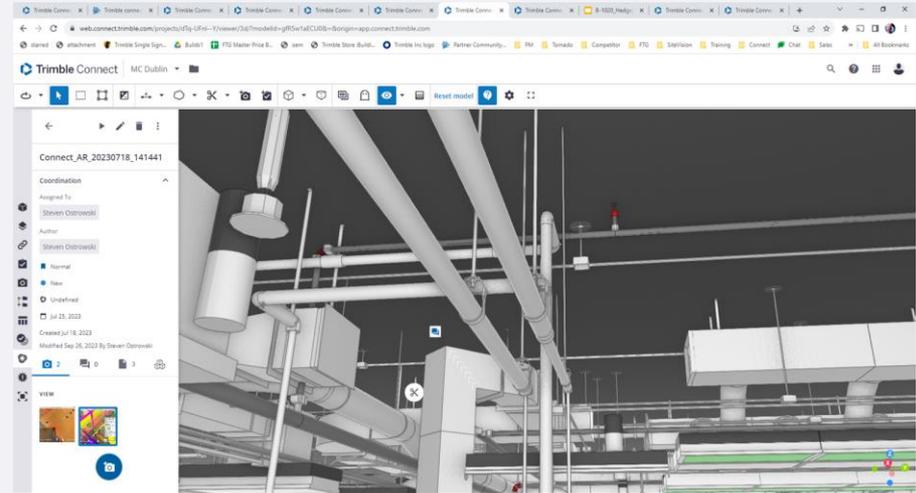
Model > Name > Staked	Count	Name	ΔH	ΔV	MeasuredDate	MeasuredX	MeasuredY	MeasuredZ
MCNW H3-5.fbx (1246)	1246	Varies	10.94 sFT	45.78 sFT	Varies	756062.38 sFT	147078.27 sFT	
FL_ControlPoint (13)	13	Varies	--	--	--	--	--	
FL_DesignPoint (1071)	1071	Varies	10.94 sFT	45.78 sFT	Varies	756062.38 sFT	147078.27 sFT	51.95 sFT
> --	878	Varies	--	--	--	--	--	
1 (193)	193	Varies	10.94 sFT	45.78 sFT	Varies	756062.38 sFT	147078.27 sFT	51.95 sFT
1	1	664	0.01 sFT	-0.01 sFT	Jul 14, 2023 01:20 AM	3880.43 sFT	800.98 sFT	-0.01 sFT
1	1	665	0.02 sFT	-0.03 sFT	Jul 14, 2023 01:22 AM	3880.08 sFT	798.42 sFT	-0.03 sFT
Total 1246	--	--	10.94 sFT	45.78 sFT	--	756062.38 sFT	147078.27 sFT	51.95 sFT



# BCF Topics

BIM Collaboration Format (BCF) is an open industry standard from buildingSMART International. It enables sharing issues between applications that support the standard, creating connected workflows.

- Track issues across platforms in relation to jobsite/models
  - Images with context model & site
- Import/export BCF topics



# 03

## Connect AR & Connect MR

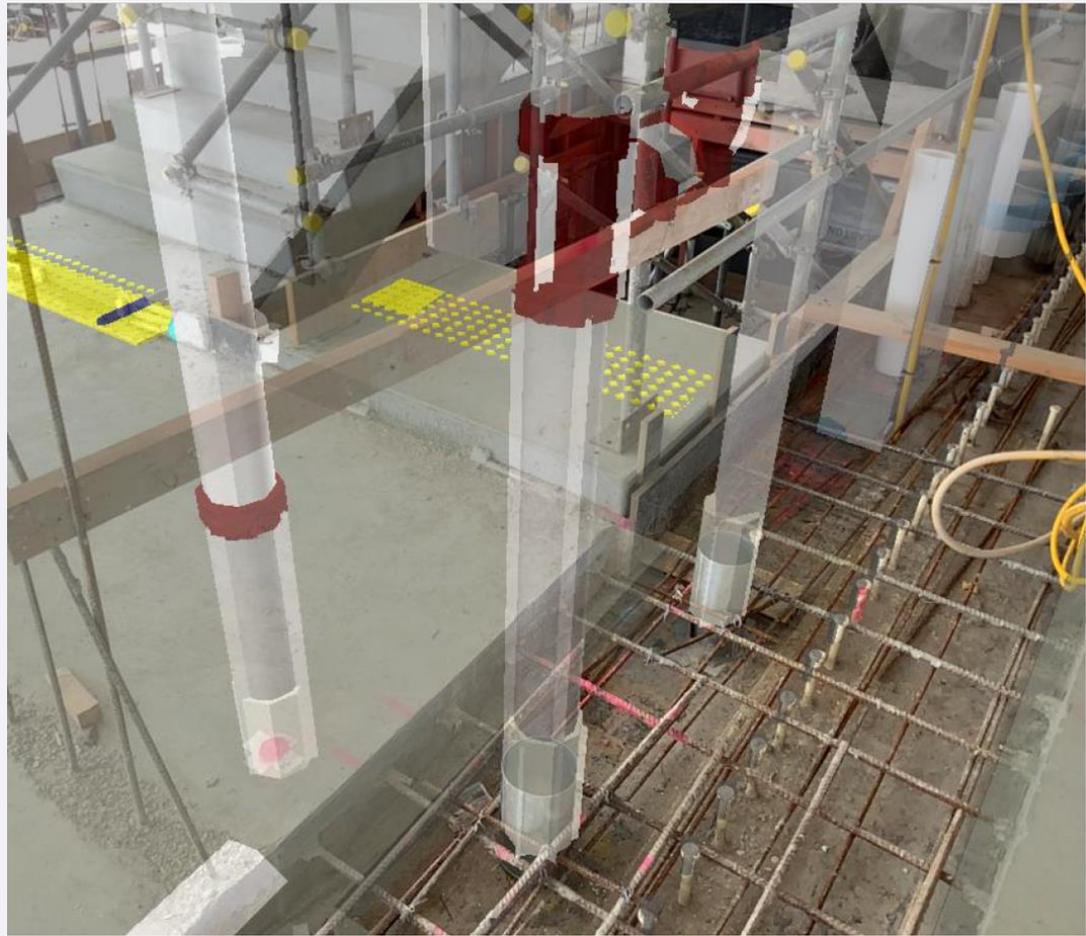
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Bringing the model to the Field



# What is Connect AR?

- 1:1 scale augmented reality view of your model
- Specifically targeting AEC workflows:
  - Pre-construction coordination
  - Construction checking
  - Post-construction QA/QC
- A step change in effectiveness compared to traditional mobile model viewing or paper plans



# What is Connect AR?

- All AR enabled iOS and Android mobile devices supported
- Works on both Phones and Tablets
- Supports all common BIM formats via Trimble Connect:
  - Navisworks
  - Revit
  - IFC
  - SketchUp
  - DWG
  - TRB
  - Tekla



# Supported Devices

Trimble Connect AR runs on iOS & Android mobile devices:

## Android

- powered by the Android operating system version 9.0 and later that are supported by the Google AR technology. There are over 400 devices which are Google AR Services compatible.
- Refer to the list that Google maintains to check if your device is supported: <https://developers.google.com/ar/devices>

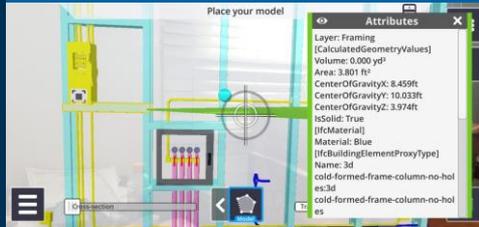
## iOS

- powered by iOS 13 and later, from iPhone 6s and later and iPad (2017) and later.



# Trimble Connect AR App

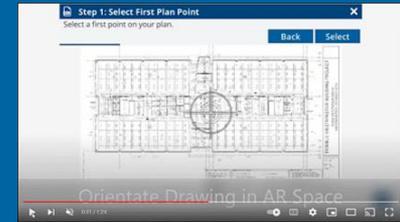
## DESIGN REVIEW



## PREFAB & MANUFACTURING



## 2D & 3D COMPARISON



## CONSTRUCTION VALIDATION

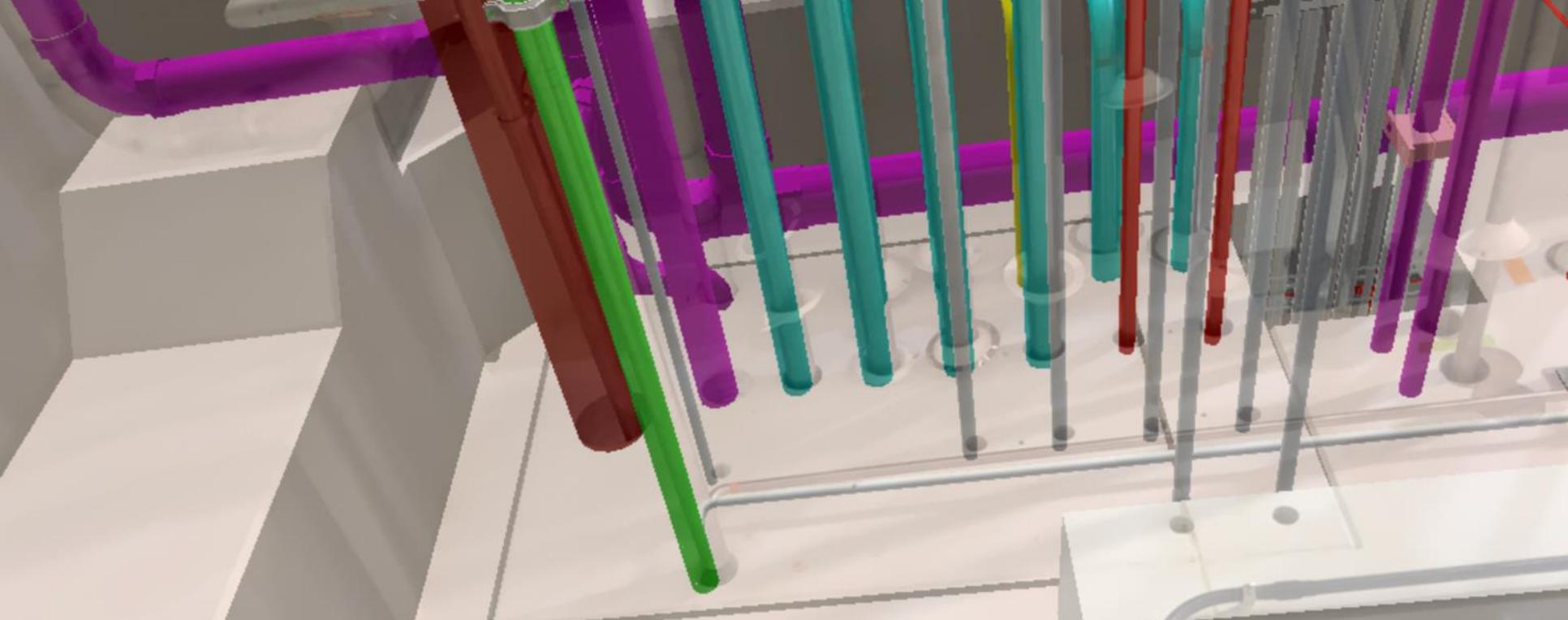


## QA/QC WORKFLOWS



## COLLABORATION TOOL





## 02 Feature Overview





# Feature Overview

Connect AR



## Model Placement

Position AR models on your job site with QR markers



## Visualization Tools

Explore accurately positioned models in their real world context with Transparency, Cross Section & Fish Bowl tools



Create A ToDo ✕

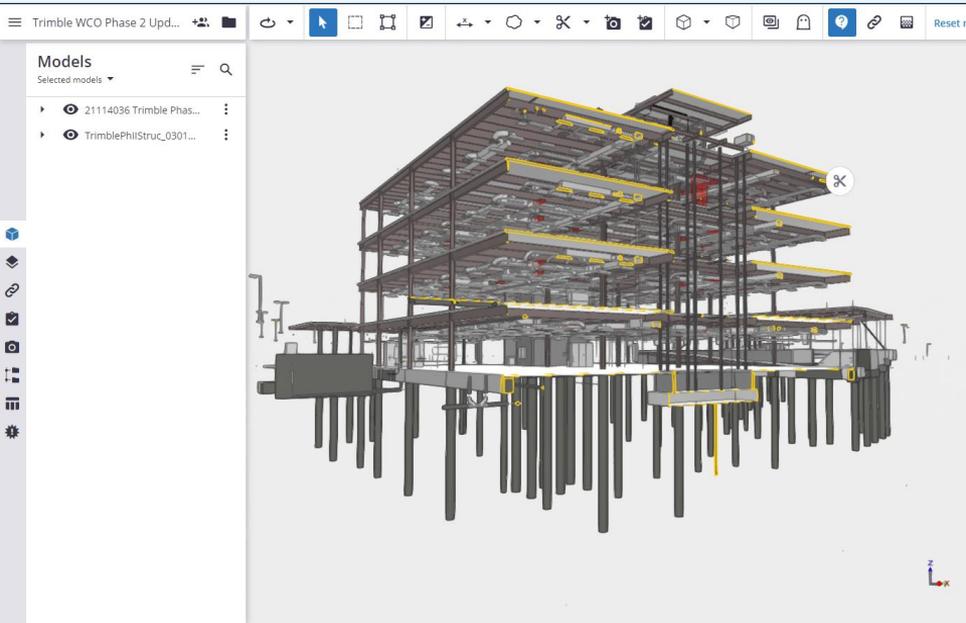
Name

Description

Priority  Type

Due Date  Assigned To





# Feature Overview

## Connect AR



### Capture ToDo's

Capture and share your augmented reality view to communicate identified issues



### Connect Integration

Manage models and collaborate with your team with Trimble Connect





# Feature Overview

Connect AR



## Measurements

Measure and record progress and as-built information, including positions, lengths and areas



## Offline Support

Work offline then sync your data to Trimble Connect

 Sync Measurements 

File Name



# Mixed Reality Solution for Construction

## XR10



### Features

- All of the benefits of HoloLens 2, plus:
- Hard Hat impact/electrical protection:
  - ANSI/ISEA Z89.1-2014 Type 1, Class E (USA)
  - CSA Z94.1 (Canada)
  - EN 397:2012 + A1:2012 (European Union)
  - AS/NSZ 1801 (Australia / New Zealand)
  - GB2811-2017 (China)
  - \*Japan in progress (Will ship ANSI in interim)
- Intrinsic safety:
  - UL Class I, Div II: ANSI/UL 60079-0 (International)
  - \*No ATEX (EU intrinsic standard)
- Visor Basic Impact Certifications
- Mobilus bone-conduction Bluetooth headset for audio-out up to 115dB
- Industry standard accessory mounts (for earmuffs, chin straps, etc.)
- 180° flip-up visor
- Improved drop resistance



# Mixed Reality in Construction

SketchUp Viewer



## Architects

Design Review  
Stakeholder Buy-In

Trimble  
Connect



## GC's

Model Coordination  
Preconstruction  
Training  
Model Sequencing  
3D Task  
Management  
Install Verification

Trimble  
Connect



## Pre-Fabricators

Design Review  
Guided Assembly  
Remote Assistance

Trimble  
Connect



## Subcontractors

Preconstruction  
Model Sequencing  
Guided Install  
Remote Assistance  
3D Task  
Management  
Install Verification



## Maintenance

Hidden As-Built View  
3D View of IoT Data  
3D Task  
Management  
Remote Assistance



# Mixed Reality Value Proposition

For contractors that need to **visualise and review the 3D design** directly on a physical environment **using holographic data**.

Our mixed reality solutions **visualise 3D content on a job site** to review design ideas in 3D, **collaborate with others** (both collocated and remote) while immersed in the design, overlay both the model and the **real world for visualisation**, and use the immersive interaction as an “instruction guide” for field installation.



# 04

## Connect Customer Stories

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Real use cases for Trimble Connect

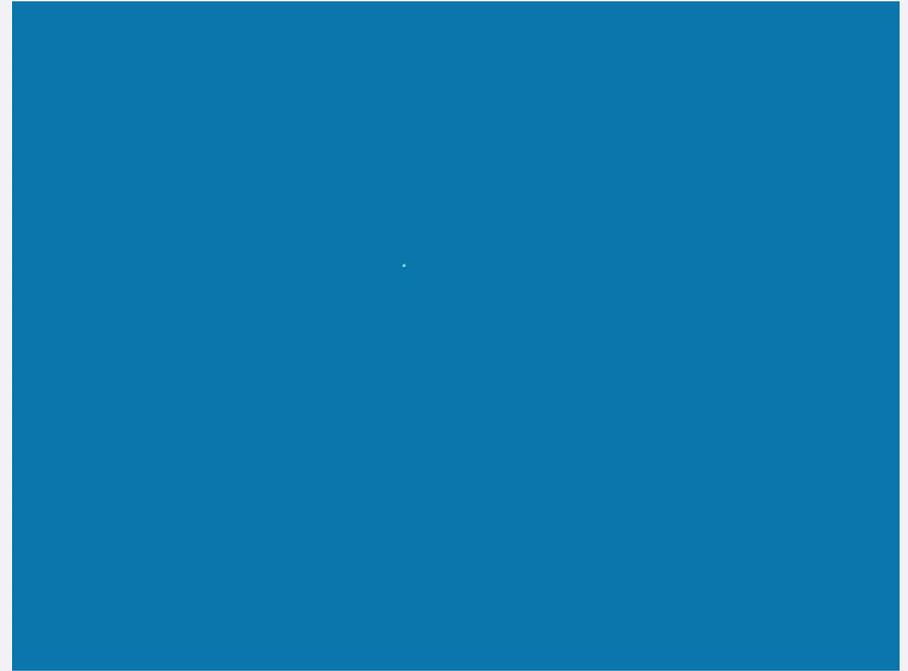


# Southbase Construction



- **Role:** General Contractor
- **Use Case:** On-site coordination
- **Problem?:** Reviewing and resolving design issues in real time

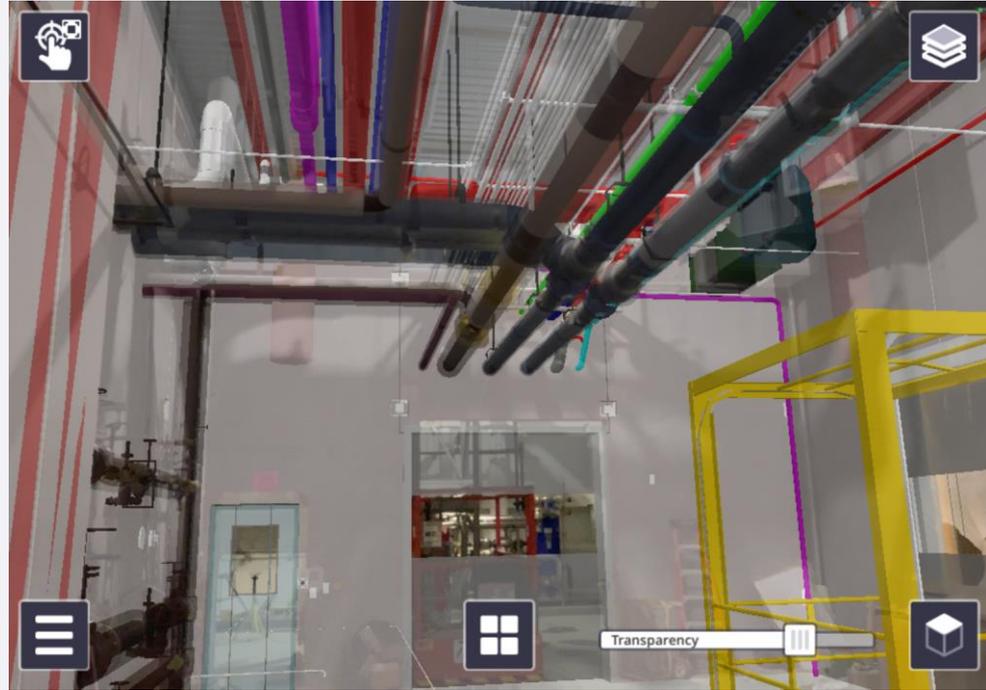
*"If we do find an issue on site. We'll go out on site, we'll scan the nearest QR code, and from there we can figure out what we need to do. If we need to move a service, or part of the structure needs to change, then from there we can solve that problem. It's much easier than doing it on 2D drawings or in the office." -George Bushell, Site Engineer | Southbase*



# Miron Construction

- **Role:** General Contractor
- **Use Case:** Installation verification
- **Problem?:** Sub-contractors not installing MEP equipment per the coordinated design

*"It is easy to set up on the front end and has paid off exponentially in the field because it works like it is supposed to work," -Sam Tijan, Virtual Construction Specialist | Miron*



# Miron Construction

- By viewing the 3D model as an overlay on the real site, issues can be easily identified
- Once identified, issues can be visually conveyed to sub contractors immediately on site

*“The intriguing thing is we can validate these processes very easily when we overlay the model. We can see the pipes lined up in the model with what is actually being assembled in the field. Prior to having this tool, we didn’t have a way to convey this visually to our contractors.” -Kacie Hokanson, Virtual Construction Specialist | Miron*



# McCorvey Companies



- **Role:** Sheet Metal Contractor
- **Use Case:** Connecting Field & office
- **Problem?:** Lack of communication, job tracking, integration to Office 365, resource costs and drilling into concrete

“At McCorvey Companies we believe in a saying called “lean and mean” FieldLink and the speed at which we can layout and install has helped us add new meaning to that saying. ” **-Mitchell Batten, Layout & Scanning Manager**

