

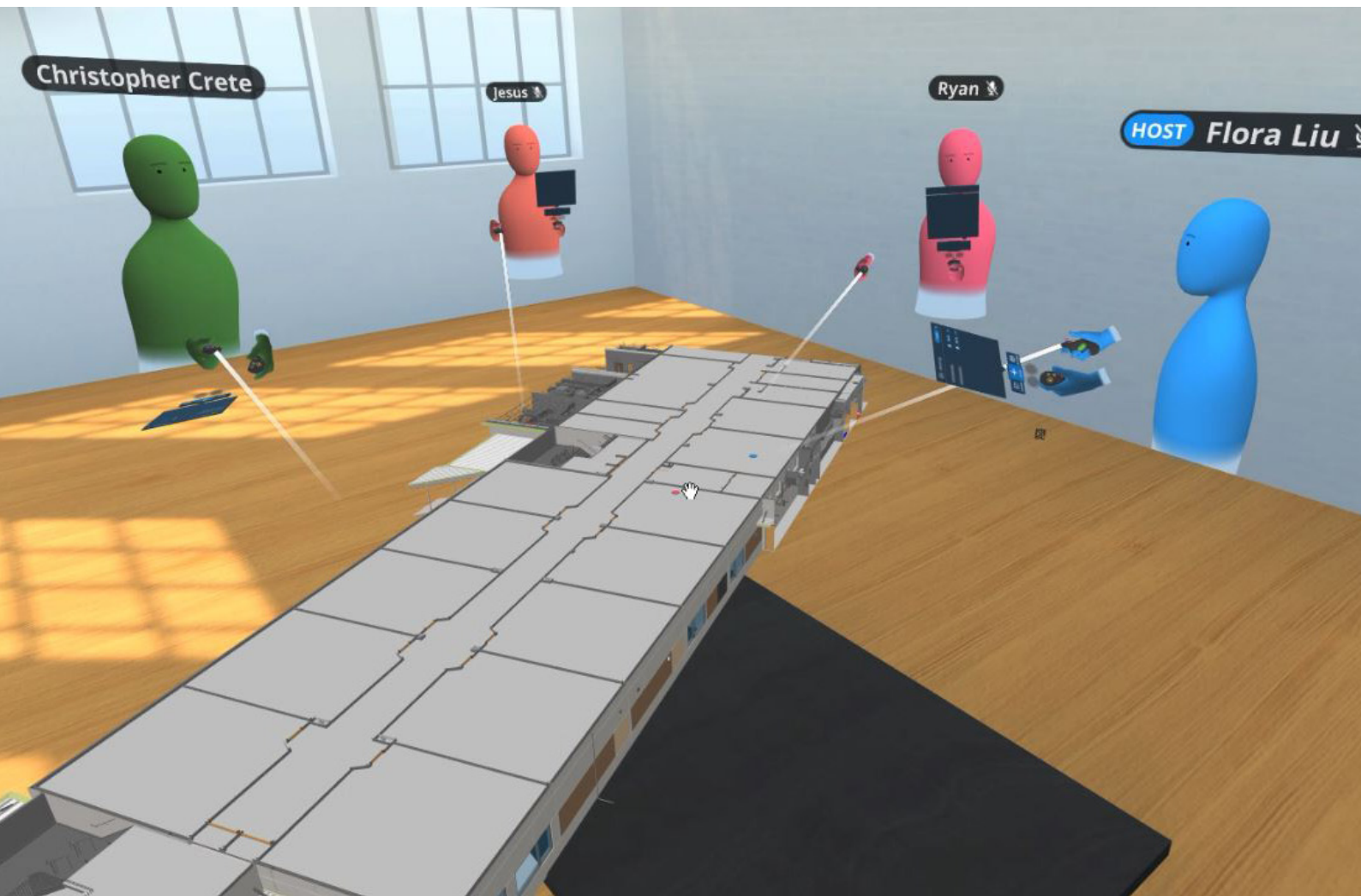


InsiteVR

Suffolk

Suffolk reduced RFIs on the \$100M Lee County High School Project by reviewing 3D models in multi-user VR meetings.

**K-12 Construction** | Suffolk Construction | Case Study



Using InsiteVR, a Suffolk Construction team used virtual reality meetings to improve communication among VDC, design and field staff to prevent construction RFIs and identify constructability issues during coordination. The \$100M Lee County High School project will house two thousand students and become one of the premier public high schools in Florida.

## SUMMARY OF RESULTS

### Timeline

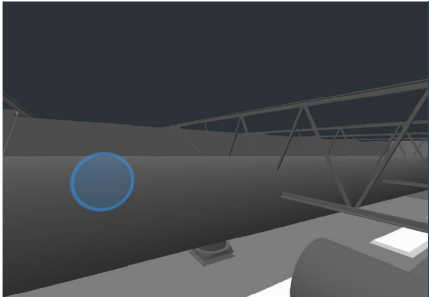
The VR coordination meetings took place during pre-con and the early operations phase.

### Participants

- Flora Liu – Studio Lead at VIATechnik
- Ryan Crete – Senior Project Manager at Suffolk
- Christopher Crete - Senior Project Manager at Suffolk
- Bryan Lee – Architect at BSSW Architects

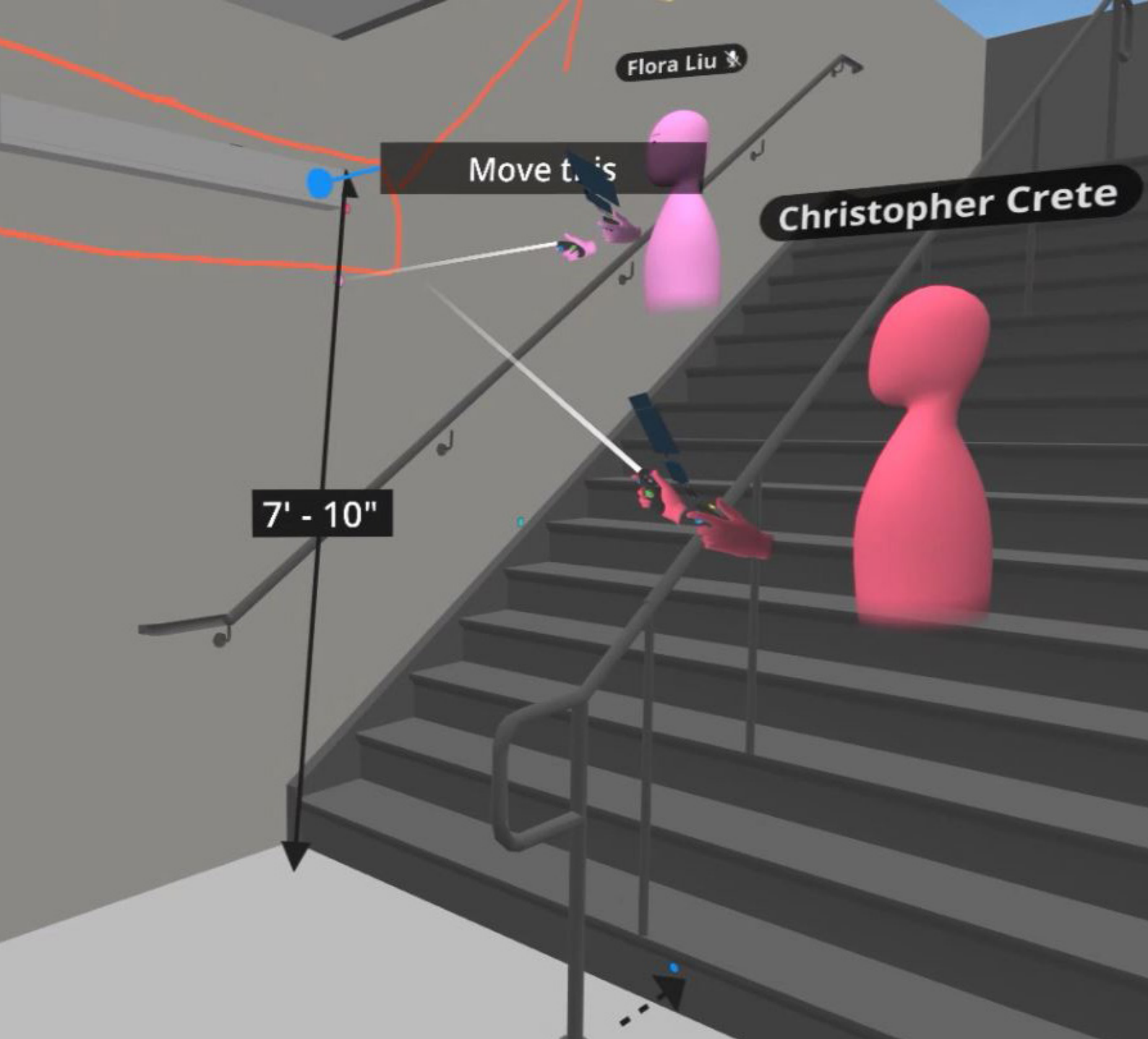
### Key Benefits of InsiteVR Meetings

- *Flagged 32 issues in VR across 3 meetings. 3 to 4 issues rated as “critical”.*
- *Discovered clashes and constructability issues in VR that were hard to detect or undetected in Navisworks*
- *Discovered design oversights that only became apparent in VR at human scale*
- *The team expressed VR was preferred for group model discussions over screensharing Navisworks due to ease of navigation in VR*



**AVOIDED RFI BETWEEN DUCTS AND STRUCTURAL**

*Although many clashes and issues were detected in Navisworks, many issues were discovered in VR to the surprise of the project team. One such issue was a clash between ducts and structural that would have caused major issues had it gone undetected.*



## INSITEVR VS NAVISWORKS

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*"I would recommend other projects use InsiteVR for group coordination in a model. I'll continue to use Navisworks when I'm alone working with the model, but it's much easier to review a model with other people in VR together because you see things differently and you're able to resolve issues as a team that you can't resolve alone."*

**FLORA LIU**, STUDIO LEAD, VIATECHNIK

## IMPLEMENTATION

### Remote Multi-user VR Meetings with InsiteVR

The Suffolk Construction team used InsiteVR to host weekly VR review meetings between different members of the project. Participants were **not** all co-located and joined the meeting from 4 different locations:

1. Suffolk Construction Estero Office
2. Lee County High School Site Office
3. VIATechnik Chicago Office
4. VIATechnik San Diego Office

The team would jump into VR during a separately scheduled VR coordination meeting. The senior project manager Ryan Crete would host the VR meeting from his Oculus Quest and all participants would easily join from their own Oculus Quest using a 6 digit meeting ID.

The VR meetings did not replace traditional coordination meetings, but were an additional meeting to complement the traditional process.

### Easy VR Setup with Oculus Quest

The team used 5 Oculus Quests to host the VR meetings.

From a designer familiar with VR to a senior engineer new to VR, the Oculus Quest allowed everyone to join VR meetings in **less than 2 minutes**.



*Bryan (BSSW) discovered a missing wall*

### BIM 360 to VR in Seconds - No model Prep

Using the InsiteVR for BIM 360 integration, Revit models were directly pulled from BIM 360 docs into multi-user VR meetings. This allowed the Suffolk Construction team to confidently host VR meetings in the latest published version of the Revit model without the need for any model prep or game engine conversions. The team can also use their hosted Navisworks model and has decided to use the Navisworks model with InsiteVR for operations as they continue to use InsiteVR beyond the scope of this case study.

### Training

Before using InsiteVR for review meetings the team underwent a hands on training session with InsiteVR. This training was critical to make sure everyone was comfortable with the hardware and the software. During the training the team learned to use speech-to-text, sketching, measuring, and screenshot tools which were critical to documenting issues while in VR.



## TEAM BUY-IN & COMMUNICATION

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*“Beyond just finding issues we wouldn’t have found, one of the key benefits of VR meetings is that you can get complete team buy-in and understanding around an issue or task. This reduces the back and forth time it takes for me to resolve an issue via email and screenshots. I can do other things with my time instead of following up and chasing down replies.”*

**RYAN CRETE**, SENIOR PROJECT MANAGER, SUFFOLK CONSTRUCTION



## EXAMPLE SAVINGS FROM LEE COUNTY HIGH SCHOOL

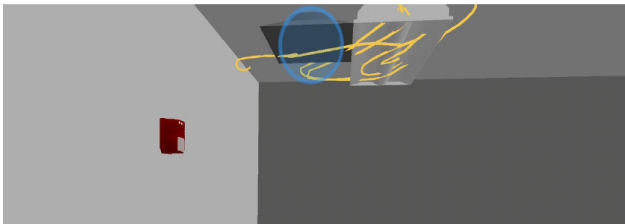
The results represented in this case study only required that Suffolk to invest 4 hours across 1 training meeting and 3 work meetings. Out of those 3 work meetings the team found a wide range of issues that weren't previously detected or addressed.

Some of the issues were constructability issues such as field staff accessibility and impossible installation situations.

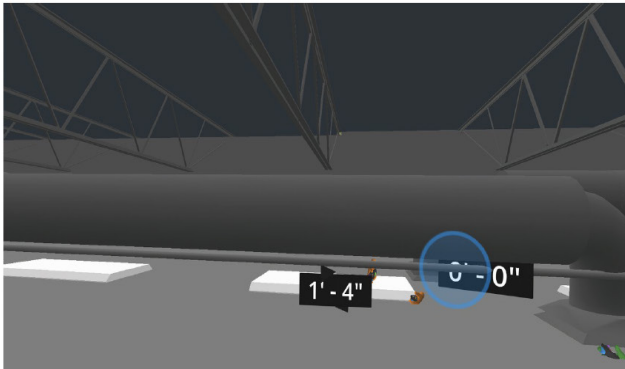
Other issues were design mistakes such as missing walls, misplaced lighting fixtures and coordination issues that weren't clashes, but were visually obvious.

After interviewing the team, they identified 4 issues out of the 32 issues created that could have been considered critical had they not be caught or resolved in VR. These issues needed to be resolved before construction began. For the time investment made into learning how to use InsiteVR they found the payback to be more than sufficient to justify its use.

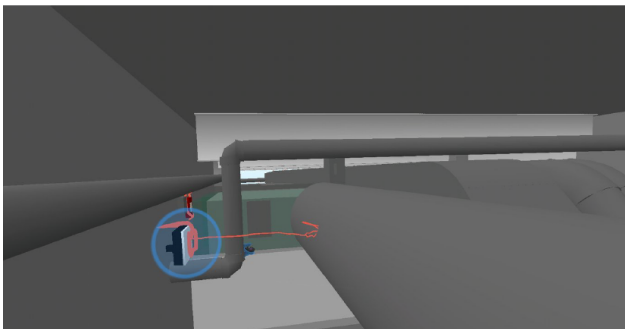
Below is a sample of issues automatically generated from the Suffolk VR meetings:



Added by: Ryan Crete  
 Element: Return Diffuser [2612817]  
 02-10-2020 at 06:19:56 pm  
 "Move this"



Added by: Ryan Crete  
 Element: Pipe Types [1502041]  
 01-24-2020 at 04:17:56 pm  
 "Let's look at dropping this fire line down"



Added by: Ryan Crete  
 Element: DUCT SMOKE DETECTOR [1011005]  
 01-10-2020 at 04:48:41 pm  
 "Relocate duct smoke detector to this location"



## BEYOND COORDINATION

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*After using InsiteVR for model coordination, the team decided to continue using InsiteVR for meetings throughout operations. These meetings more heavily involve the supers who are planning and directing field staff. The team will use InsiteVR to pre-plan upcoming work and to make sure they can swiftly execute their plans. Any issues that crop up during operations will be quickly reviewed in VR for context. Because the VR environment is easier to jump in and navigate than Navisworks, the team hopes to make the fully coordinated 3D model more accessible to field staff than ever before.*