

Virtual Reality for Foodservice Design

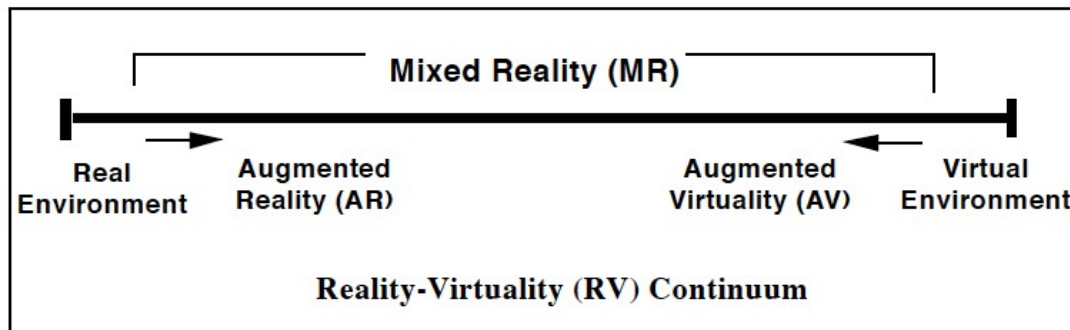
Chris Huebner

Saturday, April 21 – 10:30-11:45 a.m.



VR/AR/MR

- Virtual Reality (VR) uses technology to immerse a person in a completely computer generated world and remove them from reality.
- Augmented Reality (AR) aims to seamlessly superimpose virtual imagery over a user's view of the real world.
- Mixed Reality (MR) is any combination of a virtual environment and the real world.



AV is a virtual world with elements of the real world introduced into it, in much the same way that AR is the real world with elements of virtual imagery introduced into it.

Real-Time Rendering

What is it?

Basically it means that the rendering engine has to finish rendering entire image 30/times per second and 90/times per second for VR

IMMERSIVE VR EXPERIENCES ARE 7X MORE DEMANDING THAN PC GAMING

PC GAMING = **60 MP/S**

(1920 X 1080 @ MIN 30 FPS)



VIRTUAL REALITY = **450 MP/S**

(3024 X 1680* @ MIN 90 FPS)



*VR render resolution

2X PERF AND 3X EFFICIENCY VS. TITAN X








Most Virtual Reality is Not Virtual Reality



Shop for virtual reality headset on Google

Sponsored ⓘ

 Google Daydream View Charcoal \$79.00 Google Store Free shipping	 Homido - V2 Virtual reality... \$49.99 Best Buy 📍 Store pickup	 Samsung Gear VR with Controller \$129.99 Verizon Wireless ★★★★★ (4)	 Vivitar Virtual Reality Headset:... \$5.00 Office Depot 📍 In store	 Samsung Gear VR with Controll... \$129.99 Target 📍 Store pickup
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Google 360 Tour



Stereo Panorama Headsets

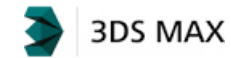
Professional-grade VR Headsets



VR Real-Time Rendering Software

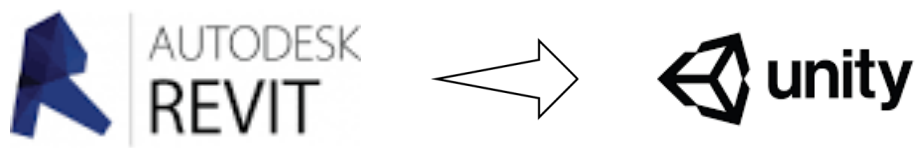


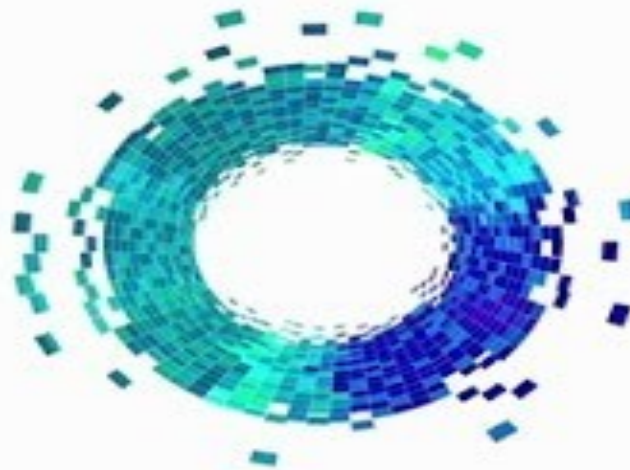
Rendering Software



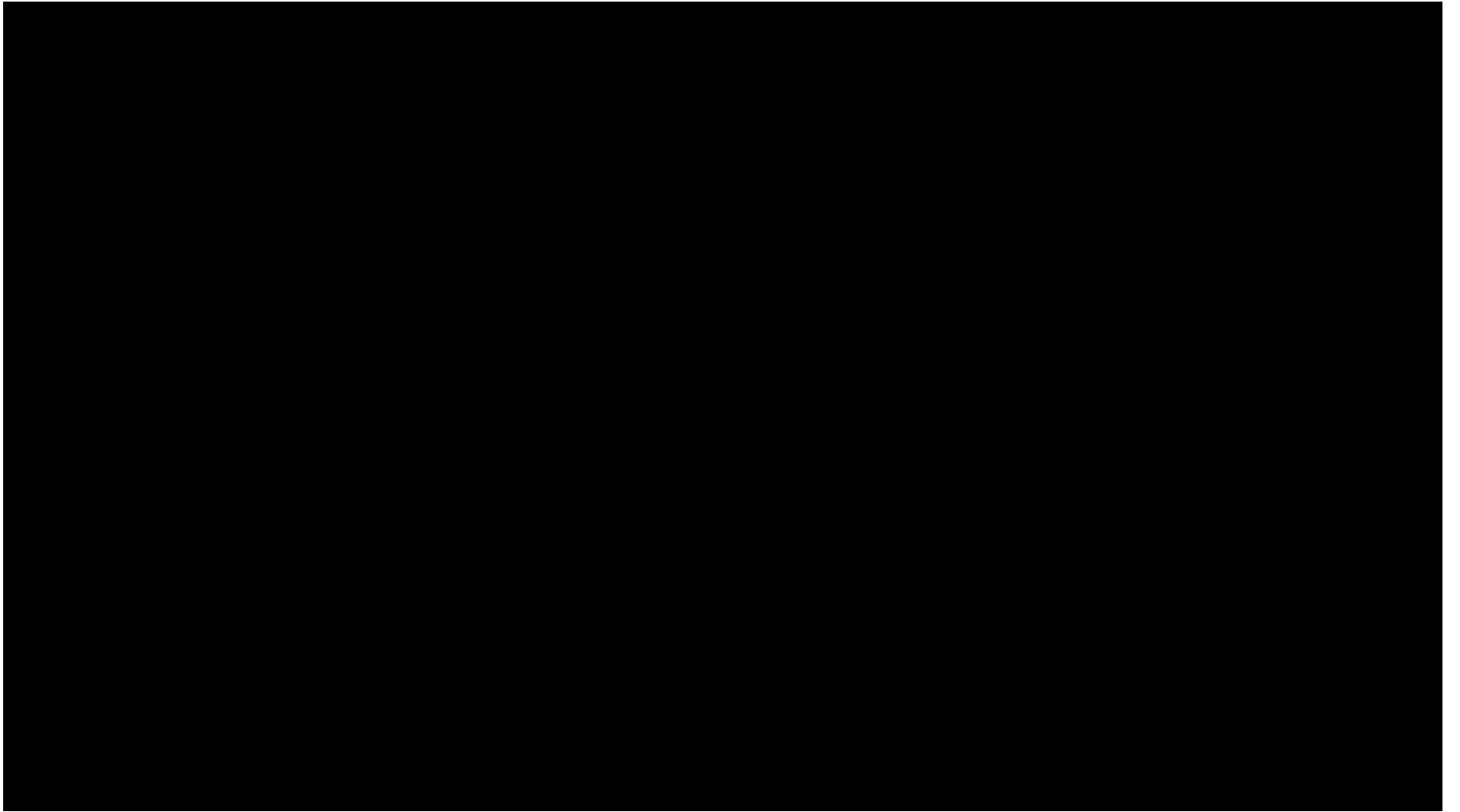
Game Engines



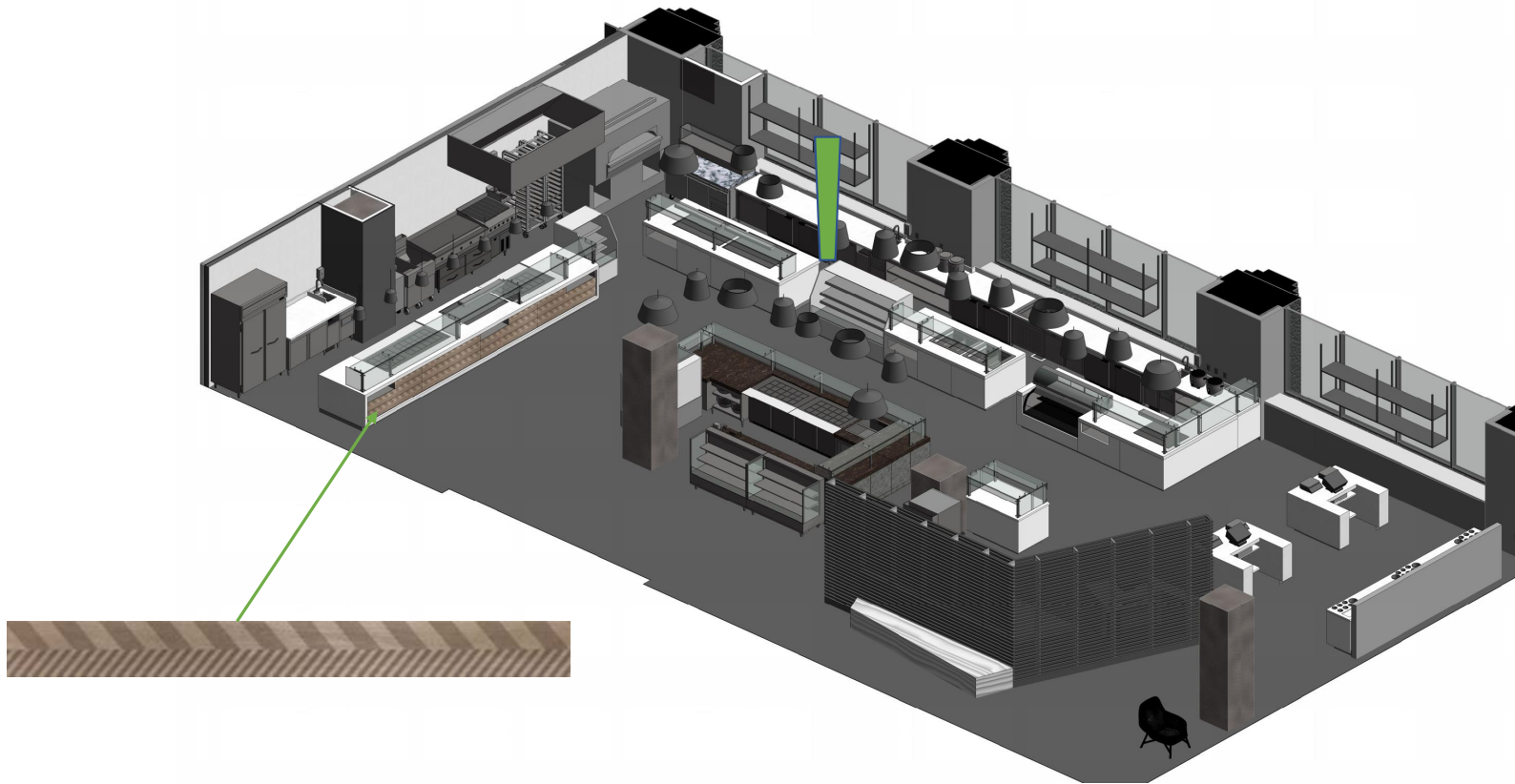




LIVEDESIGN



Getting to VR is easy, but what will you see when you get there?



Start by Creating a Camera View w Realistic Style

The image illustrates the steps to create a camera view in AutoCAD with a realistic style. It shows the software interface with the following components:

- View Tab:** The 'View' tab is active, showing options for '3D View', 'Section', and 'Callout'. The 'Camera' button is highlighted in the '3D View' panel.
- 3D Viewport:** A 3D view of a mechanical assembly is shown. A camera icon is placed in the viewport, and blue lines indicate the camera's field of view.
- Properties Palette:** The 'Properties' palette is open, showing the '3D View' section. The 'Style' is set to 'Realistic'. Other settings include 'Detail Level: Medium', 'Parts Visibility: Show Original', and 'Discipline: Coordination'.
- Graphic Display Options Dialog:** The 'Graphic Display Options' dialog box is open, showing the 'Model Display' section. The 'Style' is set to 'Realistic', and the 'Transparency' is set to 'Realistic'.

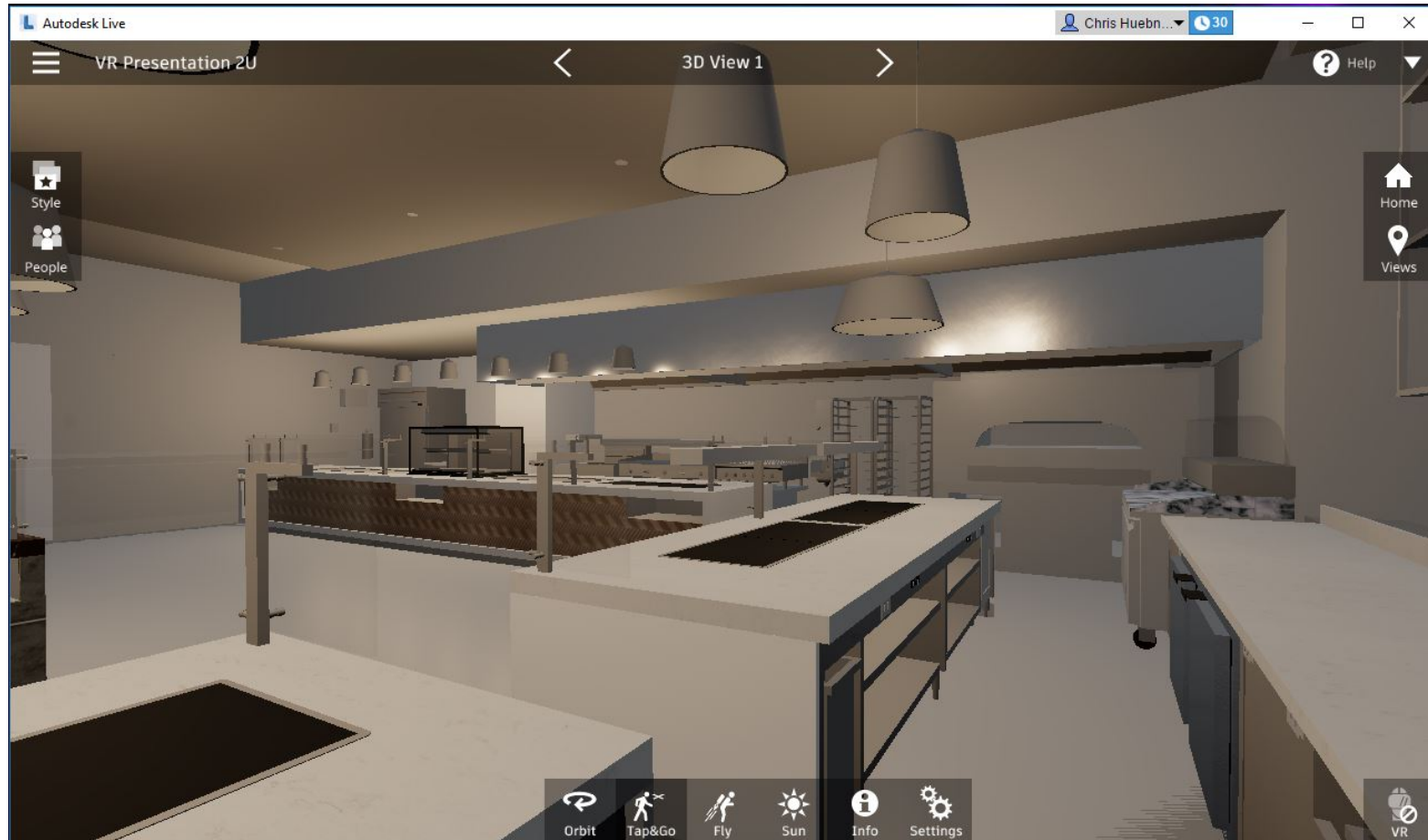
Revit Camera View (Realistic)



Revit Rendering (Medium – 5 mins)



Revit Live (2 hours)



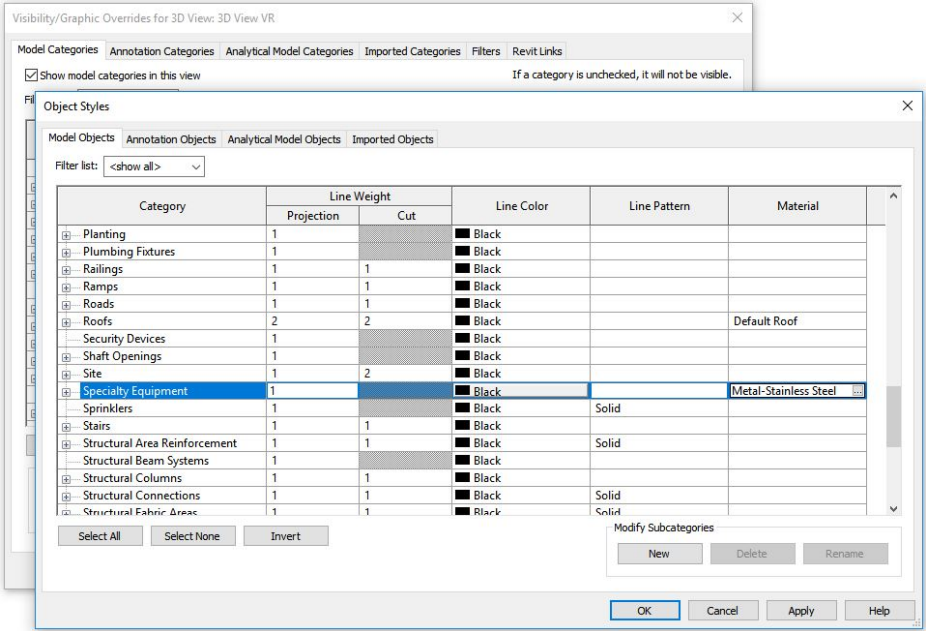
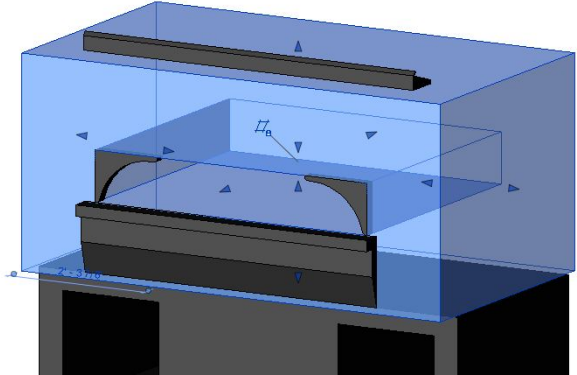
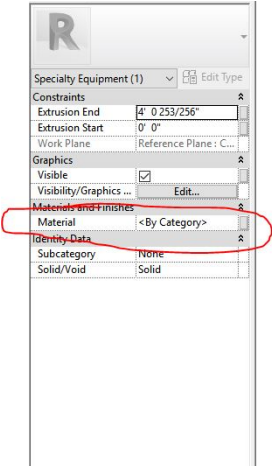
Enscape (30 secs)



Enscape



Default Material Must Be Specified!



Enscape – S/S Default Material



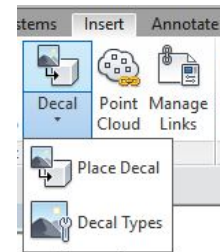
Enscape – Default Material Not Specified



VR Tips & Tricks

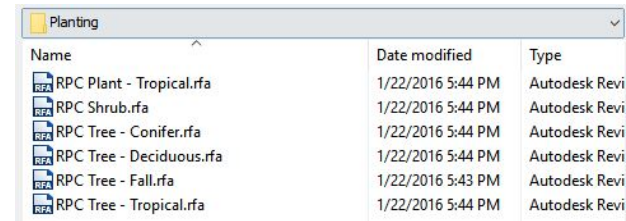
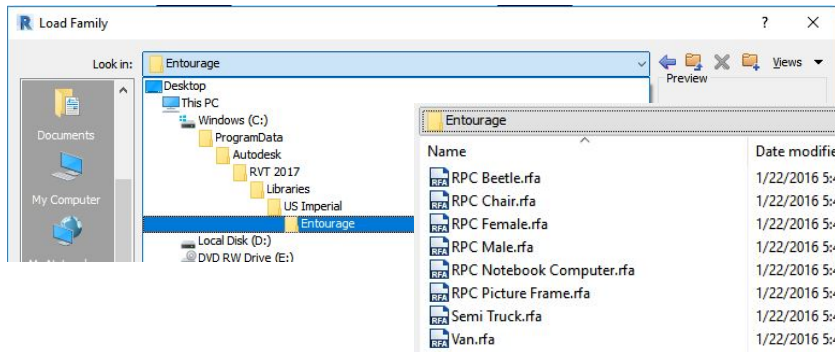
- Make sure Default Material for Specialty Equipment is Specified
 - Use a Gray Paint material if experiencing performance issues

- Use Decals for more realism and color
Decals cannot be placed on linked file elements



- Use OOB Revit RPC Entourage (people) and Planting families for wow factor, there are multiple people and plants in each RPC family
- Create a View Template in Revit for your different VR views

Rich Photorealistic Content (RPC) by ArchVision



Enscape Free Replacements (top)
Free Entourage from Revit (bottom)



\$199 + RPC Subscription on
ArchVision (\$250 per year per user)

Revit Realistic With Decals & RPC



Enscape With Decals & RPC



Enscape With Decals & RPC



Revit Live With Decals & RPC



Revit Live With Decals & RPC



Enscape With Decals & RPC (With Tile Decals)



Enscape With Decals & RPC (With Tile Decals)



Pre-Opening



Foodservice Design Familiarization

Pros

- Share the design with the whole team
- Find missing equipment and height issues fast
- Allow non-Revit users to engage at will
- Understand complex challenges such as a slanted column

Cons

- General staff not familiar enough to launch Revit & Enscape
- Limited resources such as licenses, high performance computers, headsets
- Limited collaboration inside environment and no multi-user support

Foodservice Design Validation

Pros

- Human scale experience that promotes ergonomics and sightlines
- Quick validation of concepts & spacing
- Validation process is enjoyable which encourages quality control
- Validate MEP against equipment

Cons

- Model environment is not interactive (cant move anything)
- Markups and changes are not easily documented
- Smaller details are not typically modeled so full validation not possible

Client Foodservice Design Comprehension

Pros

- No skill necessary to understand the design
- Provides human scale view
- Complicated spaces are easier to understand
- Operators can visualize their workspaces
- Extra storage space can be found

Cons

- VR headsets can be sensory overload and cause motion sickness
- VR doesn't travel well
- One person at a time
- Clients get distracted with non-foodservice details
- Clients expect model to be exact replica
- Difficult to get past the novelty
- Long time if multiple client team members
- Difficult to charge for the time
- Distracting for the rest of the office

Download ENTiTi app (Not ENTiTi 3) to Participate in Demo w/ Capable Device

Google

- [Pixel and Pixel XL](#)
- [Pixel 2 and Pixel 2 XL](#)

Samsung

- [Galaxy S7 and S7 edge](#)
- [Galaxy S8 and S8+](#)
- [Galaxy Note 8](#)
- [Galaxy S9 and S9+](#)

LG

- [V30](#)
- [V30+](#) (Android O only)

Asus

- [Zenfone AR](#)

OnePlus

- [OnePlus 5](#)



- iPhone 6S and 6S Plus
- iPhone 7 and 7 Plus
- iPhone SE
- iPad Pro (9.7, 10.5 or 12.9)
- iPad (2017)

Introducing the HoloLens

- HoloLens is a mixed reality headset by Microsoft released in March 2016.
- No wires, it is a self-contained computer running Windows Mixed Reality operating system



With Skype video chatting, HoloLens users can let others see through their eyes to help with tasks and even doodle right on top of your line of vision.

Microsoft

Live Demo

- Open ENTiTi App
- Search for FCSI
- Select any FCSI Diamond Sponsor
- Password is FCSI
- Match Logo on your Device to your Image Target

Use Cases

- Display Mini Scale Model in Meeting
- Show Human Scale Design on Jobsite
- Train Foodservice Operators How to Use, Service, Maintain or Clean Equipment
- Train Factory Workers How to Build Equipment

ARKit & ARCore to the SLAM Rescue

- ARKit was released in June 2017 by Apple.
 - Just 10 days ago they released the API update that allows developers to sense vertical walls.
 - 4 days later, 6 days ago, Artsy released their AR app that displays their art on your wall in the frame of your choice.
- ARCore was released on Feb 25th, 2018 by Google.
- Both are designed to accurately map the surroundings using SLAM, Simultaneous Localization And Mapping.
- SLAM allows the creation of AR experiences that don't require external equipment such as the Image Target.

How is AR currently being used?



SURVEY

We ask that you all please take a minute and fill out the survey related to this session.

You will find the survey on the app, under this given session.

Thank you for your participation!

