AIA TAP AWARDS 2016

YOUTH & OPPORTUNITY UNITED

360 DEGREE VIRTUAL REALITY EXPERIENCE

Y.O.U.

Youth & Opportunity United

Virtual Reality Community Outreach & Fundraising Experience

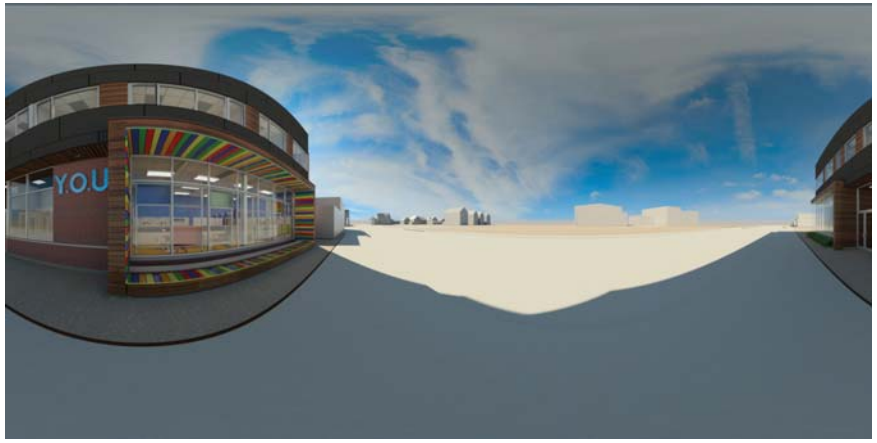
How can an architect help tell the story of a small, passionate non-profit organization? Can they leverage BIM to create a physical experience that initiates a positive memory of a space in the minds of a community before the building is built? A 45 year old non-profit youth development and advocacy organization hired the architect to design their new 12,000 sq.ft. office headquarters and youth program center. Early in the design development phase, the organization's fundraising committee asked the architect to produce renderings of the building and youth program spaces to aid in their community outreach and fundraising campaign; the architect returned a more engaging idea. Having created positive owner experiences with 360 panorama renderings of other projects, the architect pitched the idea of incorporating avatar video of the youth the organization serves into dynamic 360 degree virtual reality video renderings. The young people would act as tour guides through the building, explaining how the organization and the new building would impact their lives. A panoramic video rendering, delivered through Google Cardboard virtual reality headsets would give users the experience of standing in the future building with the young tour guides as they plead their case for the new building. The fundraising committee was intrigued, loved the idea of including the youth, and wondered if the experience could be ready for the community fundraising kick-off event less than a month away. The architect, leveraging the existing BIM model and Autodesk 360 cloud rendering to create background panoramas, felt the deadline would be achievable.

1.

Multiple 360 degree spherical photos were taken at the project site.

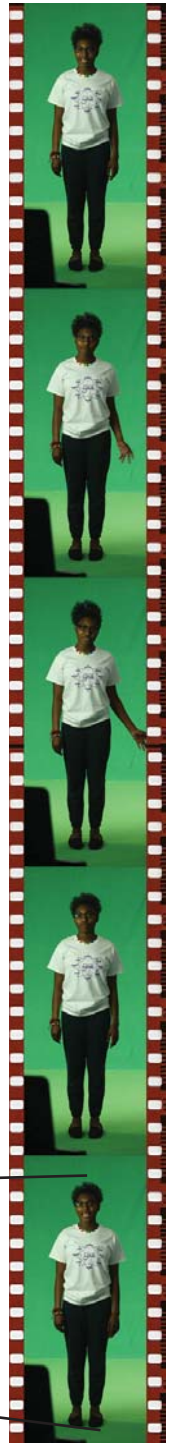
2.

The BIM (Revit) model was rendered as a spherical panorama. The same BIM model was later used to produce construction drawings.



3.

The two images were composited as a single 360 spherical image In **Adobe Photoshop.** The team discovered the **Revit** panorama always rendered the center of the image due West, so a linked copy of the model was rotated to align with the 360 photos.



4.

Videos of the youth tour guides standing in front of a green screen, talking about the building and the organization, were captured and composited into the spherical background using **Fusion 8** and **Adobe Premier** to create the final 360 video rendering.

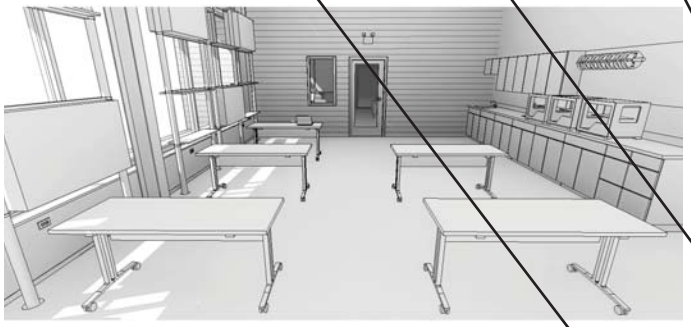
5.

It was determined that the simplest delivery platform for the end user would be to host the experience as a **360 You Tube video**. (An option that had serendipitously, recently become available.) The experience was to be used at fundraising and community events, shared with board members and potential donors, be a part of the organization's mailings, and live on-line at their website. The owner and architect felt that a stand-alone software application would be too cumbersome and not broad-reaching enough for the myriad of desired users and functions. However, a request by the owner to also have their staff be able to download the video and have it be available on older iPads and iPhones led to the experience to also be hosted on the now defunct Koloreyes.com.

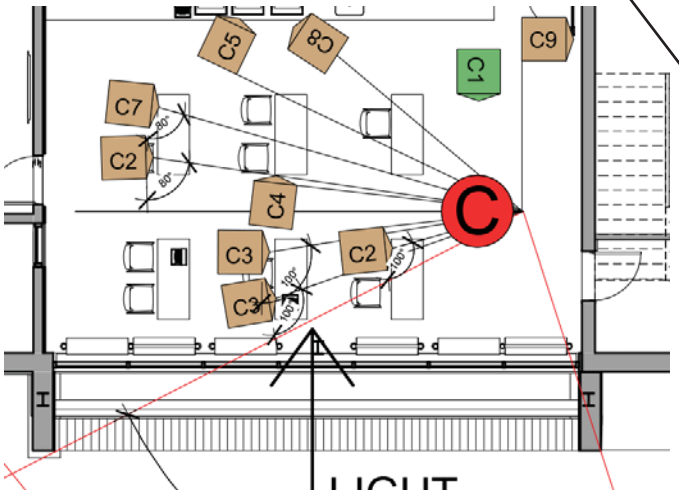
6.

Users are able to click on a link on their smart phone, slip their phone into the **Google Cardboard** VR headset and look around the virtual space in any direction, simply by moving their heads. The experience transports them into six different locations throughout the building, guided by the youth the organization serves.

Masking tape strips, tagged with angle degrees related to camera positions were placed on the floor to mark actor positions.



A screen-shot of the Revit model camera view



Elaborate video shot planning in Revit, including actor type, distance and angle related to camera position, and background view was necessary to insure that all elements would line up in post production

BIM aided the architect and videographer in elaborate video shot planning

The architect worked with the owner to develop a script for each video location. Once the script was established, the architect used symbols in the Revit model to create a shooting plan and schedule. Elements of the plan included exterior view background angles, actor types and their distance and position relative to the virtual camera. With the organization's program year ending soon, the architect would only have one half day of filming. The shooting process had to be efficient and for everything to work together in post-production, the shots had to be precise. The architect hired a local videographer to capture the video and audio. The physical camera was set up at a corresponding height to the virtual camera and tape marked out angles on the ground relative to the camera to indicate where and in what direction the actors would stand. This allowed the videographer and architect to work efficiently with the youth actors by quickly positioning them for each planned shot.

The physical and virtual combined

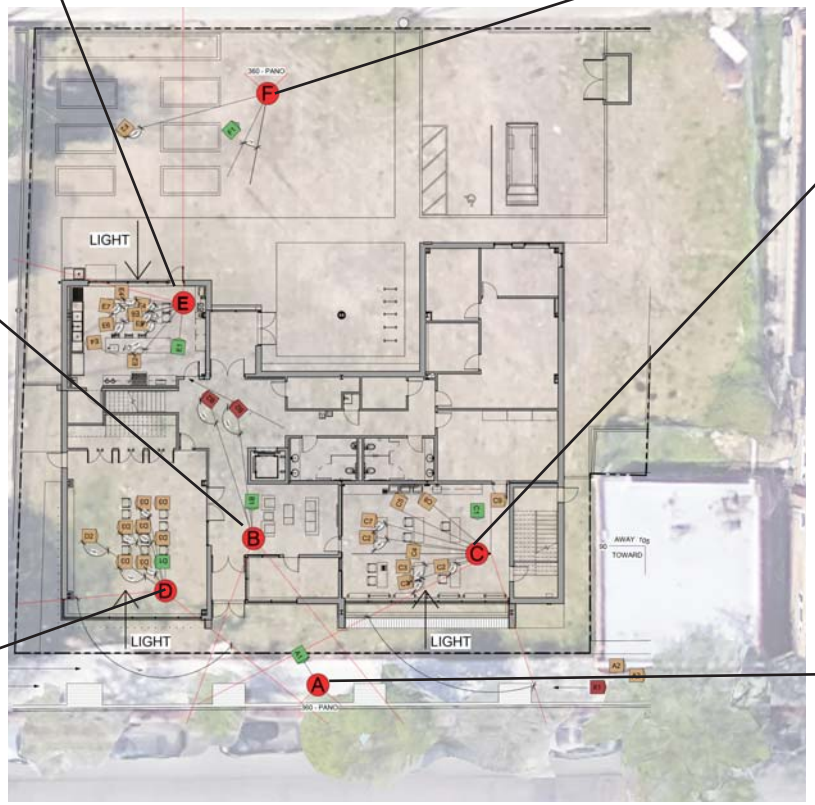
The first use of the 360 virtual reality architectural video rendering was planned to be featured at a family and community picnic event to be hosted at the empty project site. Six locations on site, corresponding to the six virtual experience locations in the building, would be staffed by volunteers. Community members could visit each location, hold up the Google Cardboard headset, and be visually transported into the future space, populated with avatar videos of the young people telling them about that specific place in the building. Users could see the high school across the street, put on the headset and see the high school through the window of the virtual gathering space. That physical and virtual overlap would help create a sense of place and form a real memory of being in a space that had yet to exist.

Later, all six experiences were combined into a single seven minute 360 virtual reality architectural video rendering that could be experienced from anywhere on a computer or mobile device, with or without a Google Cardboard headset. Throughout the campaign, custom headsets with images of the building were given to donors.

"One of my favorite things about the kitchen is that it lets people share recipes from all over the world, so I get to learn about my friends' cultures...there is something so great about cooking and eating together."

"Before this summer, I didn't know what kale was. Now, I've grown it, picked it, cooked it, and eaten it"

...Y.O.U. is a non-profit that insures young people...have the opportunity realize their full potential..."



"This is the lab where we tinker and experiment in a structured setting..."

"...Right now, Eric is reading his own poetry to an audience. That takes leadership."

" This is Y.O.U's new headquarters ...behind me, is the gallery that showcases all the cool stuff we've been creating in the maker-lab..."

Virtual reality renderings engender empathy and engagement far more than is possible with static architectural renderings.

Due to rain, the first community event showcasing the virtual experience was held in a gymnasium across the street from the project site, rather than on the site as planned. In spite of this, the owner felt the dynamic experience added great value to their outreach efforts.

Owner's Statement

"[The architect's] beautiful designs and virtual reality truly made our Campaign launch so much more engaging and exciting for our youth and families. In a very real way, [they] brought our vision to life, one year early."

A few days later at a private fundraising event, the virtual experience was set up for potential donors. Throughout the evening, community members, dressed for a night of cocktails and appetizers, would don a virtual reality headset and tour the new building they were there to support. Many would then go find someone else they wanted to bring over to experience it for themselves. Guests interacted with the proposed building and discussed aspects of the organization's goals, sparked by the virtual experience in a way that far exceeded what would have been possible in a room filled with static renderings. According to the organization's Manager of Communications and Development, "The feedback of the virtual tour was nothing short of amazing."

The fundraising campaign was massively successful

Admittedly, the 360 degree virtual reality architectural video rendering was only a small part of the overall capital campaign, but the campaign far outpaced the organization's expectations, giving them a strong foundation for a successful future in their new headquarters. The building is currently under construction and is scheduled to be completed in January of 2017.

The experience has been viewed over 2000 times on You Tube and Facebook.

Architect's Statement

As a small architecture firm, being able provide a tool like virtual reality architectural renderings to an organization's fundraising effort allows us to participate more broadly in the building process and increases our visability against the competition. Being able to leverage the existing BIM model, coupled with the capability to work across multiple software platforms, gives us an advantage over much larger firms. However, virtual reality technology is in a state of rapid volatility, requiring constant education.