

I'LL KNOW IT WHEN I SEE IT

# A WHOLE *NEW* WAY TO BUILD AND REMODEL

By Kelly McCoy

**B**uilding a new home or embarking on a major home remodeling project can invoke a mélange of feelings: excitement, delight, confusion, anticipation, frustration and even fear. A building project is a major investment and you want to make sure that, in the end, you will be living in the home that you imagine. You'd feel a lot more confident in the process if only you could see the results of your architect's concepts, interior designer's recommendations and your own selections of windows, appliances, flooring and furniture before the building is under construction. Right?

Well, according to a distinguished panel of professionals in the Boston design community, your wish is no longer a Jules Verne fantasy. Envisioning your new space in three (and soon to be four) dimensions is becoming much more common place.

During Boston Design Week this spring, more than 100 design professionals gathered at 7 Tide in Boston's Seaport to attend an event entitled, "Building Before Building." It featured a robust discussion of the ways five panelists augment design with technology to help clients envision exactly what their new space will be. In fact, some of the technology goes beyond just envisioning the space; it allows a homeowner to actually experience it as if they were there, before it's built.

There are now industry-transforming showrooms right in New England that offer a kinesthetic experience to understand how products will perform in your home. Plus there is a growing community of architects, designers and builders offering virtual and augmented reality models that let you walk into your new home or remodeled rooms with a headset to see, and even hear, how the space will feel.





I'LL KNOW IT WHEN I SEE IT

# The Future is Here

The Boston Architectural College today offers more than 20 courses in design technology, as well as a Digital Design and Visualization Certificate program for architecture students, and for working architects who would like continuing education in this area.

## BUILDING BEFORE BUILDING MASTERMINDS



**SEAN CLARKE**  
Event Moderator

President

Clarke - Sub-Zero/Wolf/Cove  
of New England

We designed Clarke at 7 Tide to be a totally kinesthetic experience. Our mission is to educate our visitors about kitchen technology, and create ways they can actually experience their new kitchen with all of the senses. During a visit to Clarke, you not only see beautiful products, but also smell the aroma of wonderful cooking, taste the freshest food, and touch and cook on the kitchen technology yourself. We're constantly reimagining new ways to use both our kitchen technology and new design technologies in service to the design community and their customers.



**CHRIS BROWN**

Principal

b Architecture Studio

A lot of our homeowner clients aren't reading plans every day, so they're not used to it. From the beginning in our small firm, Building Information Modeling (BIM) technology was very important to me. Having one platform, ArchiCAD for us, which allows us to draw a floor plan and then elevate that to walls and the roof, is key. Twenty years ago, architects and designers were making chipboard models of homes and now we can get a concept for a new site sometimes in a day and show it to the client faster and get their input. I still like to sketch, but these tools allow us to collaborate much more efficiently.

We're getting closer to being able to make these huge decisions with true confidence with companies like Clarke and Marvin at 7 Tide, as well as b Architecture Studio, Eleven Interiors and Windover Construction.

Panel Moderator Sean Clarke, explained that Clarke's interactive Sub-Zero, Wolf and Cove Showroom and Test Kitchen was designed as a totally sensory experience. In the space, which has more than a dozen inspiring full-scale kitchens, architects and designers can project their plans and renderings on a 16 x 9-foot media wall so that homeowners can see their kitchen design in full scale. Steps away, they can actually cook on the Wolf appliances to inform their selections while Clarke chefs prepare small bites so they can taste the results of the kitchen technology they're considering.

Miana Hoyt Dawson, marketing strategy manager for Marvin Windows and Doors' distributor A.W. Hastings, was enthusiastic about the three proprietary technology tools developed for Marvin at 7 Tide, the country's first Marvin Experience Center. The first is encountered in Marvin's Living Room Experience, where a short-throw projector allows visitors to see endless photos of unique installations of windows and doors to get their creative juices flowing. Then comes the feature that really excites visitors: showing windows and doors in full scale and changing the sizes and shapes in real time as the homeowner reacts to having each in their home. If an 8-foot-high door doesn't feel large enough, immediately it is transformed into a 10-foot door. If a bank of three windows doesn't feel right on the wall, with the click of a button you'll see four.

The second space is the Resource Pavilion where, in addition to seeing samples of wood species and the colors for metal cladding, visitors engage with a Touch Table to design their own windows and doors. As the visitor selects a window style and places the wood sample on the table, it immediately renders in that wood. Change the sample color placed on the table and the rendering redraws instantly to show a new option. As if this weren't exciting enough, everything in the Marvin Experience Center is "Session-based Technology," meaning when you arrive, you are given what looks like an ordinary notebook, but embedded inside is an electronic chip. This allows you to simply tap the notebook on any photo,

rendering or sample that inspires you and it is saved and emailed to you within a half-hour of your visit. You can then review your selections and share them with architects, interior designers and family members.

While Clarke and Marvin at 7 Tide are helping homeowners get a true sense of products they will enjoy in their homes, Chris Brown, Principal at b Architecture Studio, is leveraging design technology to give homeowners a keen sense of how their new space will feel. Brown is a huge advocate for Building Information Modeling (BIM), which allows his small firm to do the work of 20 architects while also instilling confidence in clients by showing them 3-D projections of their project along the way. "The technology helps our team not only communicate with customers," says Brown, "but also keeps us on track with zoning regulations and the client's budget. From the time we opened, we knew this would be important."

Meanwhile, Interior Designer Michael Ferzoco, founder and Principal at Eleven Interiors, loves the way his BIM technology can help keep the lines of communication going on a project. "In the past it could take days to get plans or renderings to another state or country for clients to review. It slowed things down," he said. "Today, with 3-D modeling, we can set up a phone meeting and do a simple screen share while the client is in London and I'm in Boston and our conversation moves the project along. We can make changes and they can see them during the call. They more fully understand what their space will look like and feel confident in their decisions."

On the building side, Amr Raafat, director of virtual design and construction at Windover Construction, is passionate about today's design and building technology. His team leverages both virtual and augmented reality platforms to create total 3-D experiences of residential and commercial buildings. He insisted that the investment in these technologies has saved Windover and their clients dramatic amounts of time and money. "Using 3-D Studio Max," he says, "we fill in all the materials and can change them easily with the click of a mouse. So the client wears an Oculus Rift (virtual reality headset), and he can see exactly how the floors will look in concrete vs. wood in his new building. When he says, 'I don't like the concrete,' the decision is made and we can proceed."



### MIANA HOYT DAWSON

Marketing Strategy Manager

A.W. Hastings - Marvin  
Windows and Doors  
Experience Center

The idea is really to narrow down this idea of customization for somebody who is facing a decision on their own space. There really is only one set of options for them and that space. How do we give them the tools to be part of that conversation? It's important to note that with all of our technology, we found it really important to have the physical pieces, samples, that people can hold in their hand at the same time. You're holding a piece of mahogany and then, when you place it down on the Touch Table, it changes the whole expression of the window.



### MICHAEL FERZOCO

Founder/Principal

Eleven Interiors

We bring clients into the office and we have a lot of 3-D drawings that we'll throw up on large screen projections so that they can actually feel this space, how it will both look and feel. The technology gives them a good idea of proportion and scale to envision themselves in that space. And, it's been incredible to be able to make the client feel more comfortable about the selections that they're making. We can change things with the click of a button and since we can show them ahead of time, then they can feel confident in the direction of their project.



### AMR RAAFAT

Director of Virtual Design  
and Construction

Windover Construction

At Windover, we use Virtual Reality (VR) to give the client a sense of the space. We had a project where the client had to understand the distance between a counter and the wall. So he put the Oculus headset on and immediately said, "Oh no, this is so tight." We made the change right away. In the past we would have built it and had to change it afterward, which would be much more expensive. The technology helps with changes and helps to prevent mistakes. We have our own staff use VR to go into the space before it's built to check whether the placement of electrical outlets or other positioning make sense. It's very valuable.



These design and construction professionals are also visionaries, always looking to see what's coming on the horizon to further enhance the client's experience and make designing and building more efficient. There was talk, during the design panel, of 4-D modeling to include sound, which would allow homeowners to consider how walking across different floor materials would change the experience of their space or how to simulate sun exposure to help position windows. So, if you're a person that tends to say, "I'll know it when I see it," you may want to inquire about a firm's technology and make it one of your considerations when selecting someone to design your project. **NEL**

I'LL KNOW IT WHEN I SEE IT

## Your Design Tech Decoder

**Don't know your BIM from your CAD? No worries. Here's a list of tech term definitions, so that you can feel more confident in conversations with your architect, designer or builder.**

### AEC

In the design world, AEC is shorthand for architecture, engineering and construction and refers to these inter-related fields as one entity, as in "This is a great software tool for AEC professionals."

### AR

AR stands for Augmented Reality. This technology allows a designer to overlay an existing space (for example a kitchen) with a view of "enhanced reality," showing what new cabinets, appliances, windows and doors might look like in that space.

### ARCHICAD

This is an architectural software for handling all common aspects of aesthetics and engineering during the whole design process of the built environment – buildings, interiors, urban areas, etc.

### AUTOCAD

This refers to software developed by AUTODESK to create 2D and 3D computer-aided designs.

### AUTODESK

Autodesk is an American software corporation that builds software to help people imagine, design and create homes, buildings and more.

### BIM

BIM stands for Building Information Modeling, an intelligent 3D model-based process that gives architecture, engineering and construction professionals the insight and tools to more efficiently plan, design, construct and manage homes and commercial buildings.

### CAD

CAD is shorthand for Computer-aided Design. IBM introduced its CAD drafting system in the mid 1960s and this phrase has

become the generic term for a growing list of sophisticated software platforms/tools that enable architects, designers, engineers and construction professionals to produce 2-D, 3-D and now 4-D models of a home or commercial building.

### MATTERPORT SCANNER

A Matterport 3D camera captures 2D photography and 3D data from existing spaces and automatically stitches them into a complete, immersive 3D model of the space. This is often used to create life-like real estate tours for purchase and sale purposes. Some leading-edge architectural and construction companies are using this technology to then overlay a 3D augmented reality suggestion of what the space can/will become with the new project.

### MAYA

Maya is a 3D computer animation software (created by AUTODESK) that allows a designer to model entire environments. AUTODESK also created 3DS MAX (also known as 3D Studio Max) to create high-end 3D design renderings of designed environments.

### MEP

This is an acronym for Mechanical, Electrical and Plumbing, three aspects of building design and construction. While not a "technology" term, it is often used in conjunction with describing the benefits of a software platform, i.e. "This BIM software includes features for MEP." MEP is typically a term used in commercial, rather than residential buildings.

### MICROSOFT HOLOLENS

This is a headset for augmented reality environments, where the designer can put a homeowner or other viewer inside an existing environment and overlay (or augment) what exists with a 3D model of new elements (moves walls, shows new windows, doors, cabinets, appliances, furniture.)

### OCULUS RIFT

This is a virtual reality headset that some construction companies are using to communicate the virtual reality experience of their new space. This allows the user to feel as if they are inside the

space in the 3-D environment. It also offers audio, so the user can experience that sense as well and hear how the beachfront might sound outside or the birds chirping in the background.

### REVIT

Revit is a computer software platform (created by AUTODESK) used by architects and engineers for Building Information Modeling. It allows a designer to take the idea of a building from conceptual design to construction documentation (detailed specifications and even permitting documents) within one software environment, saving time and reducing errors.

### RFID

RFID stands for radio-frequency identification. RFID uses electromagnetic fields to automatically identify and track tags attached to objects. This allows a showroom visitor with a RFID device to electronically store images and information seen while shopping to refer to in the future without physically taking photos or making notes.

### RHINO

First released in 1998, Rhino has become one of the standard 3D modeling tools for designers and architects. It provides the tools to accurately model and document designs.

### SKETCHUP

This design software is a 3D modeling software. It allows designers to move back and forth between 2D and 3D. They can create a 3D model of a space, but once the model is approved, they can then create a 2D "blueprint" to be used for building purposes.

### VR

VR refers to Virtual Reality, which is a computer technology used to create a simulated environment. Unlike more traditional computer tools, VR places the user inside an experience or space. While often thought of as a computer game concept, architects, designers and builders are increasingly using VR to allow home or building owners to experience their space as if they were inside it before breaking ground. Typically a user would put on goggles to experience the VR environment.