

Real Time Rendering vs. Photo/ Texture Mapping

By: Howard Weiner, CEO, BuilderFinish

The following outline is intended to address the pros and cons of the two primary visualization tools available today, specifically as they apply to the building industry. The visualization tools addressed are real time rendering (RTR) and photo or texture mapping (PM). The best visualization tool will vary by builder and the importance of the various functions and features outlined below.

Defining the Differences

Real time rendering is a server-based application typically associated with an ASP model. RTR permits the user to model each object in a scene once and then use the modeled objects in an infinite number of scenes and combinations. Each time the end user selects a new object for viewing; the scene is re-rendered in real time. If the angle or size of a scene changes in RTR the new objects change size and perspective automatically.

Photo mapping is the process of replacing certain areas of a photo-realistic image with a new image. For example, if a user selects a tile floor instead of a wood floor, that part of the picture, which contains the wood floor, is replaced with a picture of tile flooring. In PM there is only one view angle and if the size of a scene changes, the entire database of saved images (or object maps) must be created again.

Realism

If a decision was to be made today solely on realism, photo mapping is the superior solution. Media Lab on Line, Focus 360, and Ion Media are all companies that produce exceptionally realistic photo mapped images of rendered scenes and because they are a series of jpeg images they download very quickly.

At a download speed of 56k, it is not currently feasible to generate high resolution, real time renderings with the same image quality of photo mapping, unless the user was willing to wait longer for the RTR to download. However, as modem speeds increase and the installed broadband user base raises this difference will even out. For example, on a cable modem, viewing a high resolution RTR and PM would not be producing a significant difference in image quality, (although the RTR image will always take slightly longer to download.

Scalability

How “scalable” RTR or PM is will depend on three factors:

- 1) The number of scenes (or floor plans) to be rendered,
- 2) The number of objects or option choices per scene, and
- 3) The “shelf life” of the objects within the scene, i.e. are they discontinued frequently, are new ones added, etc.

The basic difference between RTR and PM is in scalability. Simply stated the fewer the plans, the fewer the options and the longer the “shelf life” of the options, the more advantageous PM is. Conversely, the more plans, options and shorter shelf life, RTR is the better solution.

This is better explained by describing the difference in input methods for each system. As stated previously, each option in each floor plan must be rendered separately in PM. In RTR, however once an option is rendered it can be used in any floor plan without re-rendering it.

For example, if a certain GE stainless refrigerator is rendered in RTR, it can be used in any floor plan created in the same RTR program. It can also be replaced with any other refrigerator that has been modeled.

RTR is significantly more scalable than PM. Once all of the options have been modeled they can be used in any floor plan, new models can be added easily and, and products can be deleted and or replaced by the end user or builder (without having to have the scene re-created as jpegs in photo mapping).

It is noteworthy that the more options a user can view the richer their experience and the more confidence they will have in their decisions.

“Walk Arouds” and “Virtual Tours”

The appeal of 3-D images is not only as tool in visualizing a certain combination of options, but seeing those options from different perspectives. This is not available in PM. Only RTR gives the user the capability to view a scene from different angles as well as zoom in and zoom out and travel from room to room changing options as they go.

Exterior views are much more valuable when the user can see their material selections from all four sides of their home rather than just the front elevation.

Cost Difference

The cost of PM is based on a per room charge plus an additional charge for each product option that needs to be “mapped” for each floor plan. Content costs can escalate using PM as each scene needs to be physically created, then photographed. Using RTR, the per room charge is significantly less as once a product is modeled, it can be used in any configuration and in any number of floor plans.