

## Lightscape™ Release 3.2

### Features and Benefits

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Lightscape is the industry leading application for lighting design and rendering. The first program to incorporate radiosity and ray tracing technologies, Lightscape simulates the physical properties of light and materials capturing lighting effects not normally obtained with conventional rendering systems. These subtle but significant lighting effects such as indirect illumination, soft shadowing and color bleeding produce images of unsurpassed realism. Now optimized to complement the full range of Autodesk® design and animation solutions, Lightscape is used by designers to prototype and present to their clients how a building will appear when specific materials and lighting conditions are used. Digital content creators use Lightscape to light and render compelling real-time environments for games and virtual sets.

#### KEY FEATURES AND BENEFITS

- ❑ **Superior Presentations** - Lightscape's incorporates two global illumination algorithms (radiosity and ray tracing) to simulate lighting effects that are not captured with conventional rendering systems. These effects, including soft shadows from area lights, indirect illumination and color bleeding between surfaces, produce images of superior realism and accuracy.
- ❑ **Physically Based Lighting** – Because Lightscape's technology works with the actual photometric (light energy) values, Lightscape can more accurately simulate real world lighting and materials. Lightscape supports many industry standard formats used by the lighting industry enabling users to work with and evaluate real world lighting products in their scenes. A suite of lighting analysis tools lets the designer visualize and quantify the photometric performance of their models. Such "virtual prototyping" can be undertaken at a fraction of the cost of building physical prototypes (often not even possible for many architectural projects) to avoid costly mistakes in designing for proper lighting – both natural and artificial.

Even when photometry is not a major concern, designers and digital content creators using conventional rendering systems often spend an inordinate amount of time playing with lighting to obtain the natural looking effects they are after. With Lightscape's robust lighting interface and global illumination rendering, the process of lighting a scene and obtaining these effects is more intuitive. Designers can simply set up lights the way they would in a real environment, focussing more on the lighting design and less on the digital techniques required to render them.

- ❑ **Real-time Interactivity** – Using radiosity, the lighting of a scene is pre-calculated and stored as an integral part of the 3D geometry. As a result, a Lightscape radiosity solution can be rapidly displayed and rendered from any viewpoint. In fact, depending on the complexity of the scene (and the presence of a decent Open GL graphic accelerator card) users can often interactively walk through their fully rendered 3D models in real-time. For Designers this means improved design feedback and a more effective presentation tool. For Digital Content Creators, this feature makes Lightscape particularly useful for creating highly realistic real-time virtual environments for games and virtual set applications.



Figure 1. The image on the left was modeled and rendered by an architecture firm using 3D Studio. The image on the right is the same model rendered in Lightscape. Note the gradual gradation in the brightness of the ceiling from the window to the walls and how the ceiling picks up some of the color from the table and floor (color bleeding). Also note the soft shadowing around the table and ceiling coffers. While it certainly would be possible to obtain a similar quality image with 3D Studio as with Lightscape, it would require that the user have a good understanding of what the lighting should look like and then a good technical understanding of the lighting tricks and techniques required in 3D Studio to render them. With Lightscape's robust lighting interface and global illumination rendering, the process of lighting a scene and obtaining these effects is more intuitive. Designers simply set up lights the way they would want them in a real environment. The lighting effects are calculated automatically by Lightscape to produce a superior quality image that is closer to what this conference room would actually look like if built (Images courtesy of Zeidler Roberts Partnership, Toronto, Canada)

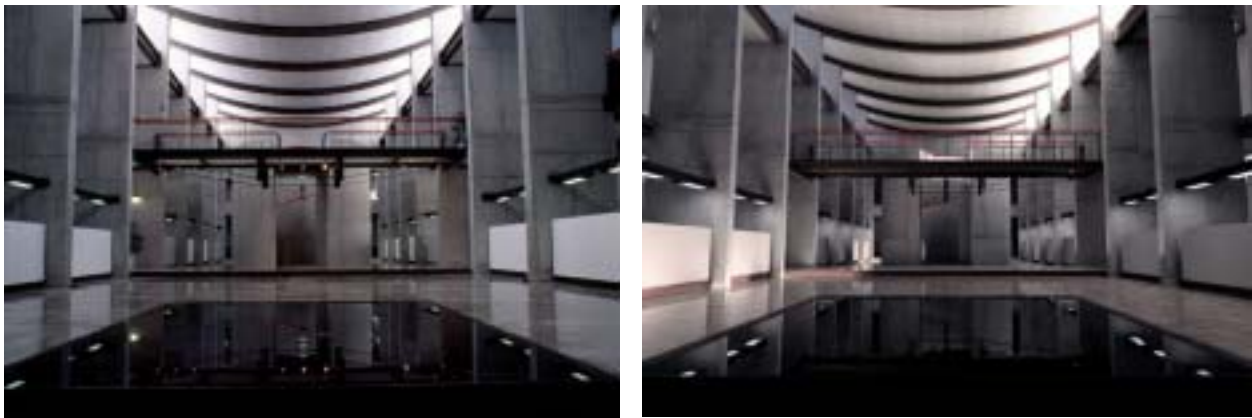
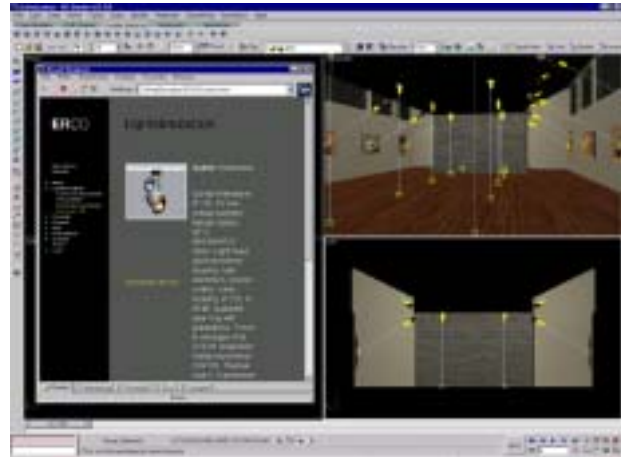


Figure 2. Is it live or is it Lightscape? Can you tell which image is a Lightscape rendering and which is a photograph of the completed building? This comparison is a dramatic demonstration of how Lightscape can provide a designer and their clients with a more predictive and meaningful representation of what projects will look like when built. Such "Virtual Prototypes" can help a designer avoid costly design errors and provides a better quality presentation to clients. By the way, the image on the left is the photograph. (Images courtesy of Guillermo Leal, Evolucion Visual, Garza Garcia, N.L., Mexico)

### 3D STUDIO VIZ<sup>®</sup> – LIGHTSCAPE INTEROPERABILITY

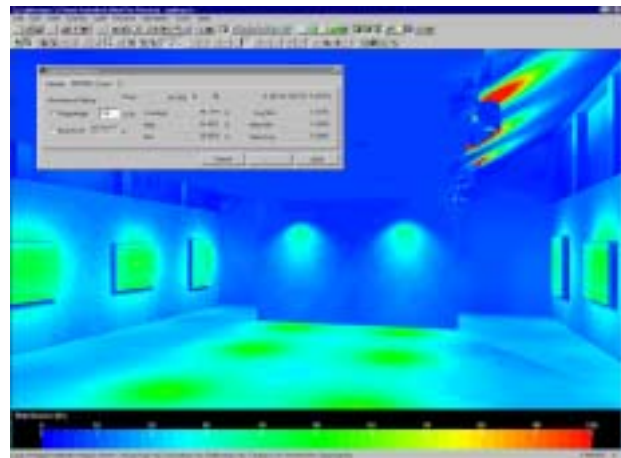
A new feature of 3D Studio VIZ R3 is that it supports Lightscape's photometric light types. Designers can use the Asset Browser to drag and drop lighting fixtures from manufacturers websites as shown at right. The scene can then be rendered in 3D Studio VIZ or exported to Lightscape for rendering and analysis. All the materials and lights are preserved and the user does not have to undertake any additional preparation work in Lightscape.



The scene above has been imported and rendered in Lightscape. Once the radiosity solution has been processed the user can then rapidly render individual images or interactively walkthrough the rendered scene. The radiosity solution can also be imported back into 3D Studio VIZ or 3D Studio MAX<sup>®</sup> where additional rendering effects, such as volumetric lights and bump maps can be added, if desired. Since all the lighting is precalculated and stored with the 3D model, rendering high quality animation frames (either in Lightscape or 3D Studio) can often be completed in a fraction of the time required with 3D Studio rendering alone.



From the radiosity solution, the user can display the illumination levels on the surfaces to evaluate the photometric performance of the model. Do the ERCO fixtures being evaluated provide enough illumination on the pictures in their current position? These type of tests can reduce costly errors in lighting design and add additional value to the customer in using 3D Studio VIZ for design validation.



## WHAT'S NEW IN LIGHTSCAPE 3.2

- ❑ **Improved Interoperability with Autodesk Products** – Lightscape now offers .DWG import for better compatibility with AutoCAD 2000 and new translator plug-ins for 3D Studio VIZ and 3D Studio MAX. Using these plug-ins customers can export 3D Studio scenes including all materials and lighting. If desired, Lightscape radiosity solutions can then be imported back into 3D Studio to be rendered with additional effects supported by the 3D Studio native rendering system. Lightscape also includes a DXF importer for compatibility with Autodesk and non-Autodesk CAD products.
- ❑ **Includes an extensive library of ready-to-use luminaires, blocks and materials** – The content of 4 CD volumes that previously sold separately as the Lightscape Library series (SLP \$99.95 each), are now included with Lightscape 3.2. These libraries contain hundreds of objects including lighting fixtures and materials representing products from major manufacturers. These ready made products can save hundreds of hours of modeling and production time.
- ❑ **Easier to Use and Learn** - Over 100 improvements have been made to the user interface including a new transformation toolbar for positioning lights and blocks. New previewing capabilities have also been added to the material and block browsers. The interface has been given a new AutoCAD/3D Studio VIZ-like look and feel to make it easier to learn for users of these products. The documentation has been completely revised with the addition of new task oriented reference sections and new tutorials.
- ❑ **Performance Improvement** - Up to 50% performance improvement in Ray Tracing with antialiasing.

## KEY FEATURES SUMMARY

- ❑ Radiosity and ray tracing enable production of photorealistic images and 3D virtual environments.
- ❑ Simulate artificial or natural lighting conditions using physically accurate, real-world lights and materials.
- ❑ Interactively walk through virtual environments.
- ❑ Perform quantitative photometric analyses.
- ❑ Interactively change materials and lighting.
- ❑ Rapidly generate high quality animation frames.
- ❑ Complements the full range of Autodesk design and animation solutions by supporting DWG (for AutoCAD 2000 and previous versions) and translator plug-ins for 3D Studio VIZ and 3D Studio MAX.
- ❑ Includes an extensive library of hundreds of ready-to-use luminaires, blocks and materials featuring products from leading manufacturers.
- ❑ New and expanded documentation and tutorials

## SYSTEM REQUIREMENTS

- ❑ Pentium® or Pentium® Pro at 200 MHz minimum
- ❑ Windows NT® Workstation 4.0 SP4 or Windows 95® SP1 or Windows 98® 64MB of RAM (128MB or more recommended, depending on scene complexity)
- ❑ 1GB HD
- ❑ Graphics card supporting 1024x768x256 colors with PCI bus (1280x1024x24-bit double-buffered with Open GL compatible 3D accelerator strongly recommended).
- ❑ Windows NT or Windows 95-compliant pointing device