

teaching, but also particularly useful for providing design guidelines which begin by giving theory and then specific advice, and end by making links to the manufacturers of the materials discussed in the theory and design adviser portions of the website. The theory portion of the site is available in English or Italian (there could be more languages.) The adviser portion and the links can be adjusted for the climate and locale of the user. This prototype is more connected than a stand alone program and significantly more interactive and self adjusting than books on the same subject.

TUTORIALS

VRSolar is a teaching tool which helps students and designers to visualize the path of the sun at different times of the year and to see the shadows that are cast. Similar programs have often been written in a standalone version or included as part of a larger standalone CAD package. In this case, however, the entire program runs within a web browser, once again making the program independent of platform. In a teaching environment or for travelling seminars, it is particularly useful to be able to run on any platform (Sun, Mac or Wintel.)

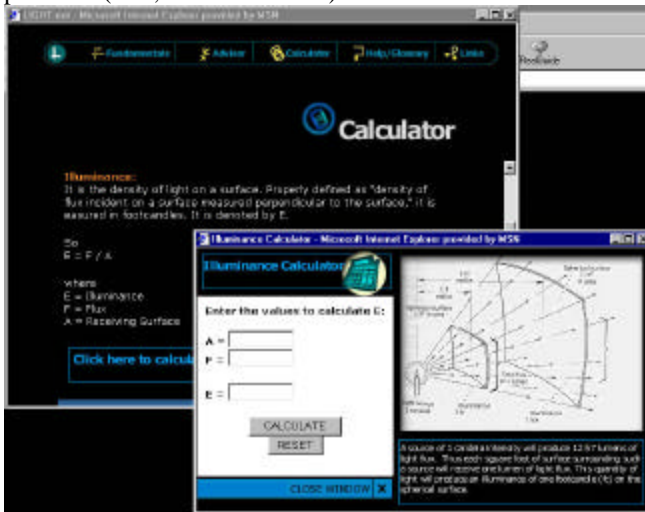


Figure 3 – Lightnet tutorial

Light.net (see figure 3) is a teaching and reference program which includes the theory which is normally taught in classes, examples and interactive scenes where the user can view a room using different light sources, color temperatures, color renderings and illuminance levels. It includes design guidelines for different functions, does simple lighting calculations and provides links to IESNA information, manufacturers' websites and other research institutes. It runs in a browser and is thus independent of platform. Great thought has gone into the hierarchy of the information and showing the right amount of data on a screen, with the option to explore further when the user is interested. At the same time, the user remains aware of where he/she is in the overall information structure and can navigate without information overload. Light.net can be accessed or downloaded from the MBS Lab site: <http://www.usc.edu/dept/architecture/mbs/>

There are many other programs which were written at USC-MBS Lab. **WebArc** is a demonstration program which allows a building owner or manager to use the net to access, sense and modify building environmental and security controls from anywhere in the world. There is a program near completion which teaches the fundamentals of **heat transfer** in buildings.

OTHER TOOL SITES

Other Sites

In order not to duplicate the efforts of other institutions around the country (and the world) other web sites have been surveyed. As a result, a compendium of such sites has been assembled, creating the possibility of providing all the tools one would need for teaching and practice connected to one central site.

Links

California has a range of institutions working on similar problems. Several provide tools which can be run within browsers or downloaded. Pacific Gas and Electric and the University of California at Berkeley (and others) have produced the **Vital Signs** project at <http://www-archfp.ced.berkeley.edu/vitalsigns/Default.htm>. Southern California Edison runs CTAC which provides design consulting and services described at www.biabuild.com/baldy/links/edison.htm#ctac. UCLA also hosts its own computer tool site at <http://www.aud.ucla.edu/energy-design-tools/>, which provides **Solar-2** and **Solar-5.5** energy analysis tools, **Climate Consultant**, which analyzes climates and **Daylit** which calculates natural lighting in buildings. There is a similar site run by Energy Design Resources which provides **eQUEST** energy analysis software, **Energy eVALUator** financial analysis software, **SkyCalc**, an excel based skylighting tool for California which can be found at www.energydesignresources.com. Such sites are described and linked to the USC-MBS site.

CONCLUSIONS

Websites are an ideal library for the dissemination of multi-platform computer simulations and tutorials. They represent such a significant leap in the combination of these potentials that they will change the way that we teach and disseminate information. <http://www.usc.edu/dept/architecture/mbs/> is one such example.

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