

The ArchiMedia Multisite: A Distributed Architectural Case Study Catalog

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The Web is a chaotic place. Anyone with a computer connected to the Internet can put up a web server and distribute files with whatever content they wish, for as short or long a period as they wish. In the web's infancy, and within certain niches today, manually maintained "favorite links" provide the means for a tightly-knit community to track the sites of interest to them. Once the number of sites became large it was clear that automated tools were needed, and search sites such as AltaVista, Excite, and Yahoo emerged or evolved. These services use an automated browser to retrieve, index, and catalog web pages at intervals. Searches of the database yields the web address, or URL, of pages containing specified words.

For those seeking to use the Web as a teaching resource, these are not really adequate. The databases simply catalog pages according to the words they contain, rather than the meaning of those words, so it is very difficult to compose searches using discipline-specific but common wording. A search of AltaVista for "prairie school" yielded some 100,000 documents! A search on "Frank Lloyd Wright" found some 10,000 documents, and a quick look at the first 100 indicated that *every one* was actually about the architect. Amongst this seeming treasure-trove however are pages cataloging stolen merchandise (a portfolio of FLW drawings), and other chaff. Even if all this information is correct, sorting through it is time consuming.

The project described in this paper has several facets, including the goal of increasing the availability of quality architectural case studies, but it also represents an effort to develop a content "multi-site." That is, a source of web-based information that might become both the place where an author would want to be listed, and the place where the researcher would think to go to find data.

The ArchiMedia Multi-site: Principle Components

The ArchiMedia multi-site consists of three main pieces: a downloadable template project for use as a guide when developing case studies; an administrative home site with documentation, indexing/search engine, cross-link redirector and catalog database; and the case studies themselves, each hosted somewhere on the web.

The Template Project

A template project was developed from an earlier disk-based multi-media version of the project (Millet, *et al.*, 1993). The template is intended to suggest optimal content for a case study, to relieve inexperienced or uninterested authors of the intricacies of HTML, and to provide a means of distributing HTML with appropriate crosslinks and search keywords already embedded.

The template project web pages provide a completely linked, but content-free case study. The complete template can be downloaded in compressed form from the ArchiMedia web site. Once unpacked, the 750 files are edited to develop a new case study. The structure of the template project is illustrated in Figure 1. Seven major categories are each broken down into several subcategories. All the files related to a subcategory are stored in the same folder, one of which has been expanded in Figure 1 (see the double bars).

| |
|--|
| <p>Introduction Foreword, About the Authors <i>content page</i> graphic background Images folder GIF files for content page JPG files for enlargements HTML wrappers for enlargements</p> <p>Setting Physical, Cultural, Historical</p> <p>Analyses Luminous, Thermal, Auditory, Experiential, Formal, Critical, Theoretical</p> <p>Design Team Firm, Lead Architect, Consultants, Engineers</p> <p>Building Parts Construction, Details, Finishes, Furnishings, Material, Structure</p> <p>Graphics Drawing, Photographs, Sketches, Models, Movies</p> <p>Bibliography</p> |
|--|

Figure 1. Structure of the template content

Using the Template

All the case study developer needs is a text editor, and a source of imagery. A web server is not actually needed during development, though testing download times on graphics is desirable. The pages provide complete HTML templates, a fragment of which is shown in Figure 2 (bold text emphasis added to indicate editable sections of text). Textual content editing is all that is required to document a case study. Thumbnail and enlarged graphic images exist as place holders, complete with appropriate HTML links. The case study author simply creates or scans images, names them appropriately, and drops them into the correct folder. It is not necessary to establish links for them. The folder hierarchy makes it straightforward for teams of students to work around major category groupings, each developing their own content and simply dropping the finished folders full of HTML and images into the case study folder. At the same time, the pre-existing pages encourage case study authors to provide information on all pertinent topics.

```
<HTML>
<HEAD>
<TITLE>The Luminous Environment</TITLE>
</head>
<body background="../bg.jpg">
<table><tr valign=top>
<td><br><b>ARCHIMEDIA CASE STUDY TEMPLATE</b>
<H2><b>ANALYSIS: The Luminous Environment</b></h2>
<b>BY THE UNIVERSITY OF XXX - DEPARTMENT OF ARCHITECTURE<br></td>
<td width=51><a
href=http://www.caup.washington.edu/archimedia/cgr.acgi>FindSimilar</a></td></tr>
</table>
<hr>
<h3><b>This Will be an Optional Subheading</b></h3>

<CENTER>
<Table cellspacing=5>
<tr>
<td><a href="images/pic1.htm"><IMG SRC="images/pic1.gif"><br><i>caption</i></a></td>
<td><a href="images/pic2.htm"><IMG SRC="images/pic2.gif"><br><i>caption</i></a></td>
</tr>
</table>
</CENTER>

<P><b>Any text you wish to include on your Web page will appear here, and in this style of
Text. To customize your text please check the documentation.</b></p>
<HR>
```

Figure 2. Template HTML Fragment

A test of the template project was conducted by asking a student to convert the original disk-based ArchiMedia case study for Alvar Aalto's Mount Angel Library to the web. Though not skilled with HTML the student was able to use the template and even customized it some, so that the final page corresponding to the above HTML appears as shown in Figure 3.

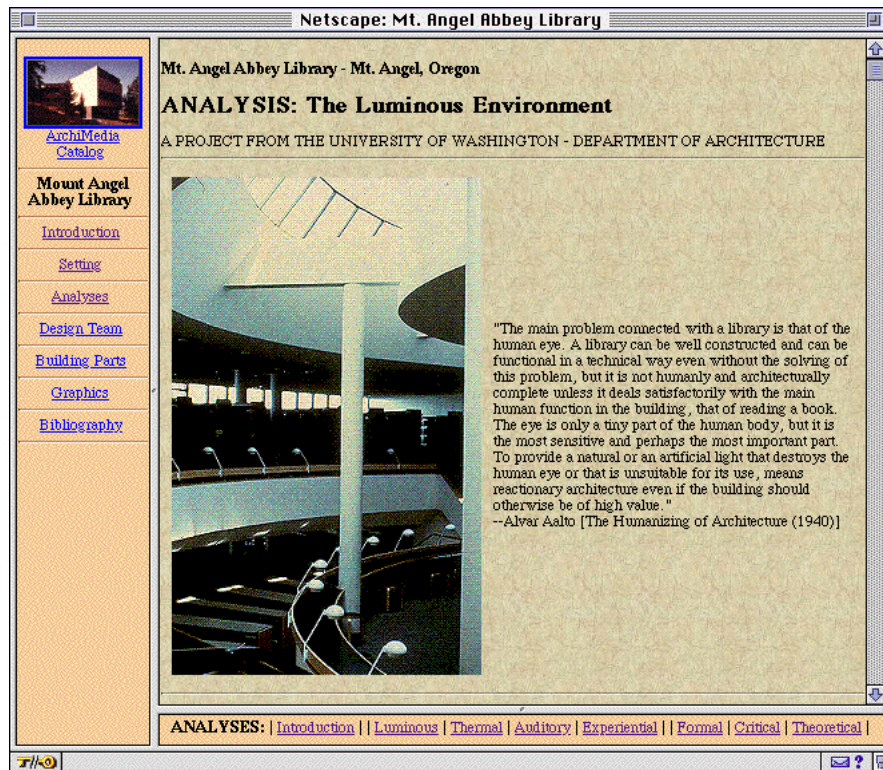


Figure 3. *Finished Web Page based on Template*

Navigation Within a Case Study

For navigation the browser's screen area is divided into three regions, also illustrated in Figure 3. A band containing a unique case study logo graphic, links to the ArchiMedia "home site" and intra-study major navigation links occurs along the left side. A narrower band of minor navigation links, which changes whenever a major link is selected, is located across the bottom. The central part of the screen is dedicated to content. The navigation links are all provided by HTML framesets, included in the template project but stored separately from the content pages. The separation of navigation links from content pages virtually guarantees continued navigability, even if major editing mistakes are made to a content page. Inclusion of the navigation frames in the template allows the case study developer to browse their case study off-line as it is being developed.

Each content page resembles that shown in Figure 3 when browsed. Depending on the HTML knowledge and skills of the author, these pages may be extended to almost any length, or abbreviated as necessary. The prepositioned graphics, complete with "enlarged view" links, make it easy for someone with modest scanning skills to include graphics on their case study pages. The provision for a different background graphic to be used with each content page provides more latitude with regard to graphic design, as does the case study logo. Space is provided at the bottom of each page for authorship credits. The page is designed to make clear where the information is coming from, even when it is displayed in a frame served from another site.

The "Home Site"

The layout of pages on the ArchiMedia "home site" resembles the template layout, but these pages are not part of the template project. The home site includes information about the ArchiMedia multi-site system, as well a certain central services. It includes system documentation, compressed copies of the template project for download, a central catalog database and a central content index. In addition, there are HTML forms and associated software for initiating searches of the collection, submitting the URL of a case study to the central catalog, or posting a comment to a central bulletin board.

The Catalog

A database is maintained of each case study submitted to the ArchiMedia catalog. The catalog records such information as the Uniform Resource Locator (URL) for the case study home page, information regarding the case study building (building name, location, architect) and information about the case study web site (author(s), e-mail contact for the project, etc.). ArchiMedia users may sort the catalog in various ways when searching for case studies.

The Indexer

The ArchiMedia collection may also be searched with a standard search engine. The URL for each newly-cataloged project is passed to the ArchiMedia search engine. On a regular basis the projects are retrieved and word-indexed by this automated software. That database enables content-based searches of the collection, accessed via forms linked to the home site.

The Cross-link Redirector

The ArchiMedia template project includes "Find Similar" links on each topic page. These provide a means of linking to like topics in other case studies, at other sites, something we call "cross-grain browsing". The target URL for a cross-grain link is subject to change over time and cannot be included in the template. However, the data necessary to select the link will reside in the search engine's database.

In order to enable cross-grain browsing, a Common Gateway Interface (CGI) application was written which we call a "Cross-link Redirector." If not commanded otherwise when linked to, it uses the referrer (source) page's URL to tell where the "Find Similar" request originated and then transparently sends the browser to the search engine with an appropriate search string. To reduce the number of "hits" the search engine will find, each page in the template case study contains a unique identifier which describes its location in the structure. This text is indexed along with other page contents, allowing the search engine to search across a set of case studies rather than simply within a given case study. This dynamically updated and automatically maintained cross indexing of case study contents should provide a significant inducement to abide by the standard case study structure.

"Foreign" Case Studies are OK

Smooth operation of the Redirector is the only aspect of the ArchiMedia multi-site which actually depends on the template project to any extent. Pre-existing case studies and case studies which simply do not wish to follow the ArchiMedia template may still be cataloged and indexed. If their authors wish, they may add "Find Similar" links to their pages, and simply specify the appropriate "keyword" string as a fixed piece of text in their HTML. This, along with other page contents, allow the indexer to search "across" a set of case studies rather than simply within a given case study. This dynamically updated and automatically maintained cross indexing of case study contents is intended to provide a significant inducement to abide by the standard case study structure.

RESULTS

Problems

The current cross-link redirector links to a local search engine, the results of which are displayed for the user to select the next site. It would be desirable to eliminate this step, but it is difficult to see what criteria should be used to selecting the next case study, even if it contains a page with "similar" content to the current page. Is the next case study "adjacent" to the current study because of project location, architect, date of case study indexing, or what? What variables are allowed to change, and which ones would you like to hold constant?

Sites which use frames for navigation have a problem with search engines, including this one. When a cross-grain link is performed, the new content page is displayed using the framset and navigation links of the referring site. It will be necessary to provide a "Frame Me" link on each content page in addition to the "Find Similar" link, in order to resolve the resulting confusion. This will also help re-set the navigation environment of any browsers who might come to the site from one of the mainstream search engines.

Project Status

The ArchiMedia site is located at <http://www.caup.washington.edu/archimedia/>. The administrative pages (index, documentation, help information, cross-link redirector, catalog interface, etc.) are substantially complete. The template project is complete and can be downloaded in either .SIT or .ZIP form. The template project can also be browsed. We continue to seek suitable case studies to include in the database.

Conclusions

We have developed a web content and cataloging system which requires minimal administrative, server, or editorial overhead, and yet provides a value added web site for students and scholars. In this case the project contains architectural case studies, but the approach should be broadly applicable. The term "multi-site" has been coined to describe this aggregation of discrete web sites and servers with multi-server browsing enabled by centralized indexing and content-based cross-links.

REFERENCES

Alta Vista, <<http://www.altavista.digital.com/>>, search text "prairie school" or "+Prairie +School" (January, 1997).

Infoseek Corporation, <<http://www.infoseek.com/>> (January, 1997).

Johnson, Brian R. and M. Millet, "A Web-based Architectural Case Study System", in Architecture: Material and Imagined Proceedings of 85th Annual ACSA Conference, Dallas, Texas, pp 491-496.

Johnson, Brian R. and M. Millet, "Development of a Case Study "Multi-site" on the World Wide Web", in CAADRIA'98: Proceedings, of the third conference on Computer Aided Architectural Design Research in Asia, T. Sasada *et al.* (eds), Osaka, Japan , pp 223-232.

Millet, Marietta, P. Cohan and G. Hildebrand, "ArchiMedia: Interactive Architecture." in Educational Multimedia and Hypermedia Annual 1993, Association for the Advancement of Computing in Education, Charlottesville, VA, p. 616.

Millet, Marietta, P. Cohan, G. Hildebrand and M. Read, "ArchiMedia Case Studies: Integrative Architectural Education," in Reality and Virtual Reality: Proceedings of ACADIA91, Los Angeles, California (New Jersey Institute of Technology, Newark, NJ, 1991), pp. 127-134.

Netscape Communications Corp, <http://home.netscape.com/assist/net_sites/frame_syntax.html> (January, 1997).