



THE GLEASON PARTNERSHIP

114 COMMONWEALTH AVENUE
BOSTON, MASSACHUSETTS 02116
617-267-6980

HANDED OUT TO CHINESE DELEGATES
INTERESTED IN CAD

THE GLEASON PARTNERSHIP is a small, progressive architectural firm based upon an active collaboration since 1978. The partners provide personalized professional services tailored to the specific requirements of each client. The computer has permitted the office to remain small, while providing services normally provided by larger firms. The partners are conversant with computer-aided design (CAD), which is integrated into all phases of project development.

COMPUTER AIDED DESIGN ADVANTAGES

1. CAD is a drafting tool, providing basic drawing and editing functions such as moving, copying and erasing of drawing lines.
2. CAD enables many other unique features beyond being a simple drafting tool such as:
 - a. Stretching, which allows a previously drawn plan to be stretched or elongated.
 - b. Enlargement of selected areas of the drawing.
 - c. Automatic dimensioning of plans and elevations.
 - d. Symbols and Templates for storing and reusing previously drawn parts or components of a building.
 - e. Reports which can generate door and window schedules or cost estimate reports for all symbols used in the drawing.
 - f. Default drawings provide a standard or beginning point for certain types or categories of projects.
 - g. Quick generation of many variations of a scheme, and easier revision of drawings.
 - h. Drawing a building in three dimensions.
 - i. Performing hidden line removal on a three dimensional model of a building.
 - j. Rendering three dimensional models with texture maps and shades.

CAD AND OFFICE PRACTICE

Computer Aided Design does require a change in the way one thinks about a project and in the process and way one practices, however it is only a tool. In some respects greater organization and care is required and in other ways CAD is easier than manual drafting.

Schematics and Design Development

There is no real substitute for drawing by hand at the schematics level. Many ideas are being considered and various factors and conditions have not yet found been clarified or given a priority. It is important once a general direction is found, to start drawing what is known in CAD. Push the CAD drawing as long it is comfortable, and until the "unknowns" force you back to sketching. Plot out a working copy of the CAD drawing and use it to develop the scheme further with sketches. The looseness of sketching combined with the preciseness of the computer will shorten the schematics stage. Quick 3D massing studies and development of rough CAD elevations quickly become indispensable tools.

Renderings

We have found three dimensional CAD features useful for developing full rendered line perspectives and for providing base lines of a given "view" for hand renderings.

Working Drawings

This is the area where CAD initially was found to be productive. The clarity of drawings, ease of reuse and adjustment of details and automatic wall cleanup routines all contribute to CAD as a pure drafting tool.

CAD "PRODUCTIVITY"

Small firms generally use CAD more productively than large firms because by the nature of the firm, the principal is actively involved in and learning the CAD system. There is a relatively larger resource commitment to CAD and a more flexible attitude about making it work productively. Also those who are using the program are generally responsible for the design and working drawings. In larger firms it is more difficult to find true decision makers using the CAD program. In other words the "head" is not connected to the "hand". Perhaps these statements are unfair to some larger firms who have been true pioneers, however I believe it to be generally true.

We have found that use of CAD takes about as much time as manual drafting, unless the project reuses much of a previously developed set of symbols and default drawings. So why use CAD? Because of the advantages listed above which take CAD beyond being a drafting tool. We can now provide better services with a more "professional" appearance, and do more than we would have before CAD.

Computer Aided Design is naturally more productive on larger, repetitive types of projects, however its advantages are also readily found in small projects and in renovations of all kinds. Wherever there are drawing tasks which can be systematized and there is some form of duplication and modification required, CAD will show its advantages over manual drawing, with clearer, more legible and buildable documents.

CAD EQUIPMENT

A reasonably current CAD work station:

IBM Compatible Computer:	Intel 80286 or 80386 CPU operating between 20mhz and 33mhz
Coprocessor:	Intel 80287 or 80387 Coprocessor
Random Access Memory:	2-8 megabytes (not essential to start)
Hard Disk:	40-200 megabytes, 28 millisecond avg. access
Floppy Disk:	1.2 megabyte, 5.25" or 1.44 meg, 3.5"
Operating System:	MS-DOS 3.2 or greater.
Mouse:	Three button
Monitor:	VGA Standard
Plotter or Printer:	Dependent on type of output required for application.
CAD Software:	Many programs available, we like DataCAD by CADKEY, Inc. because it is easy to learn, yet powerful.

The minimum equipment necessary is an 8 mhz IBM AT 80286 compatible with 20 meg hard disk, EGA Monitor and Adapter Card, and three button mouse. As CAD drawing skills improve and drawing size increases, the computer speed becomes more critical. For serious drawing the CPU should be at least 16 mhz with preferably an 80386 CPU.