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IDENTIFIERS *Claris CAD

ABSTRACT

This learning module for a high school architectural drafting course introduces students to the use of Claris CAD (Computer Aided Drafting) to develop a floor plan. The six sections of the module are the following: module objectives, content outline, teaching methods, student activities, resource list, and evaluation (pretest, posttest). Student activities include information sheets and contain numerous graphics showing symbols and methods. (KC)

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ED347339

High-Technology Training Module

Module Title: USING CLARIS CAD TO DEVELOP A FLOOR PLAN

Unit: SIX

Course: ARCHITECTURAL DRAFTING

Grade Level (s): 11TH GRADE

Developed by: BRUCE PAWLOWICZ & TOM JOHNSON

Date: OCTOBER 15, 1989

School: MEDFORD SENIOR HIGH SCHOOL

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Description

An architectural drafting course in which the student will first develop skills in traditional drawing methods, they will then be used to introduce this module to develop a floor plan using Claris CAD.

Names and school

Bruce Pawlowicz & Tom Johnson

Medford senior High, Medford Wi.

Module objective-

Given a Claris CAD system the student will be able to create a floor plan using proper commands so it conforms to exact standards that were obtained on a standard drawing.

Specific objectives/competencies The student will be able to:

1. Identify the 3 parts to a CAD system.
2. Explain the key elements of miscellaneous input devices.
3. List all of the various manipulation commands.
4. Develop, store & retrieve drawings from a disc.
5. Set up a plotter for loading the media and give the plot command.

Content outline

I. Introduction

A. Equipment

1. Input
2. Processing
3. Output

II. Tools, methods, and modifiers

A. Drawing with tools, methods, and modifiers

1. Pop up choices
2. sensitivity ranges of modifiers
3. Combining tools, methods, and modifiers

III. Dimensions

A. Creating dimensions

1. Dimensioning options

2. Dimensions window

IV. Using Claris CAD to create an assignment

A. Special Functions

1. Zooming

2. Layers

3. Double lining

4. Symbols libraries

V. Storing and retrieving

A. Drawing and retrieval process

1. Perform manipulation to create a floor plan

2. Place in storage

3. Retrieve from storage

4. Program plotter

5. Create the hard copy

Methodology:

1. Upon completion of all of the instruction on how to create a floor plan without using a CAD system, the students will be shown the Claris CAD tutorial video cassette.

2. A lecture demonstration will be used to further explain the use of the drawing commands.

3. Students will then be asked to work on the workbook lessons in pairs, using the tutorial program on the computer.

4. The instructor will assist in helping students having difficulty.

5. A written quiz will be given covering material learned from the workbook, video, and the lecture/demo.

6. An assignment will be given on creating a floor plan using the CAD system. Students will work in pairs to create a copy of the floor plan that they made earlier using manual drafting techniques.

7. The instructor will assist in helping students having difficulty.

8. The drawing produced with the CAD system will be evaluated using the same grading criteria as the manually produced drawing.

Activities:

1. Students will take notes during the lect./demo.

2. Students will view the tutorial video.

3. They will complete the workbook lesson on the computer, working in pairs.

4. They will produce a floor plan using the Claris CAD software.

Resources:

1. Claris CAD
2. Claris CAD video tutorial
3. Claris CAD workbook

   (Claris Corporation, 440 Clyde Avenue, Mountain View, California 94043)
4. VCR and Monitor
5. Macintosh II cx computor
6. Overhead transperancies

Evaluation

1. A quiz covering the lecture/demo and the tutorials.
2. Final evaluation of the floor plan.

PRE-POST TEST

1. What are the 2 methods for inputing information on a drawing ?

2. What are the 2 output pieces of hardware called ?

3. What is clicking ?

4. What is draging ?

5. Define:

   Pop up choices-

   Tools-

   Methods-

   Modifiers-

   Zooming-

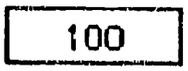
   Symbols libaries-

6. Describe how to store information on a disk.

7. Describe how to print a drawing that has been stored on a disk.

Tips

Click to change layers
Option-Click to select an object on another layer



Click to switch between the last set zoom level and 100%

Click to zoom out

Click to zoom in

Click then **Drag** to surround area to be zoomed

Click to make an object transparent or empty

On horizontal or vertical rulers

Click to set the zero point

Click to reset the zero point

Objects

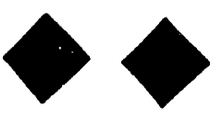
Shift-Click to select more than one object

A selected object

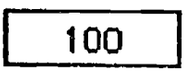
Shift-Click to deselect the object

An angle of a polygon

Option-Double-Click to prevent the angle from being smoothed



Command-Drag to show outlines of objects while dragging



Zoom percentage box

Double-Click to Zoom in or out on a document to a specific zoom level; type a number and press Enter

Shift-Drag to draw a line at 0°, 45° 90°, or custom angle

Shift-Drag to draw a square

Shift-Drag to draw a round-cornered square

Shift-Drag to draw a circle

Shift-Drag to draw a quarter-circle arc

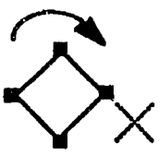
Shift-Drag to draw a line segment at 0°, 45°, 90°, or a custom angle

An object

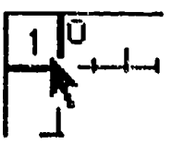
Shift-Drag to constrain movement to 0°, 45°, 90°, or a custom angle

Object's handle

Shift-Drag to resize an object proportionally or in one direction only (vertical or horizontal)



Shift-Drag to rotate an object in increments of 0°, 45° , 90°, or a custom angle



Option-Click to scroll through rulers
Option-Shift-Click to scroll through rulers in reverse order

Option-Click to scroll through pen patterns
Option-Shift-Click to scroll through pen patterns in reverse ord

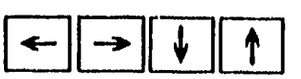
Double-Click a tool or modifier to use repeatedly

Option-Click a pattern to draw objects with patterned lines or outlines

Click in Preferences to draw polygons that close automatically

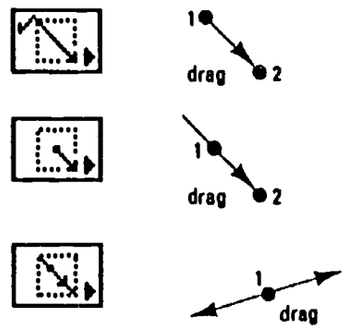
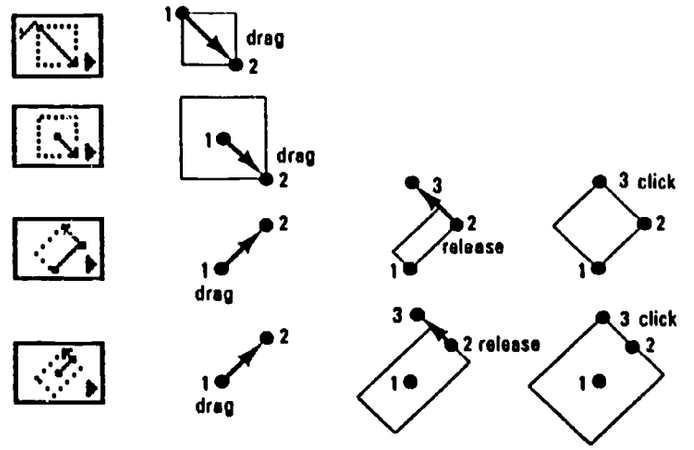
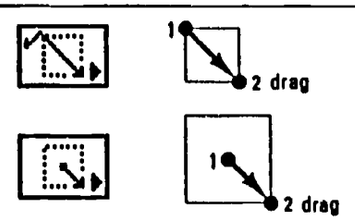
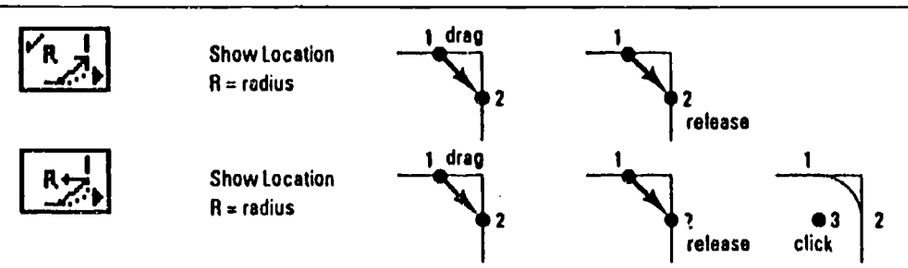
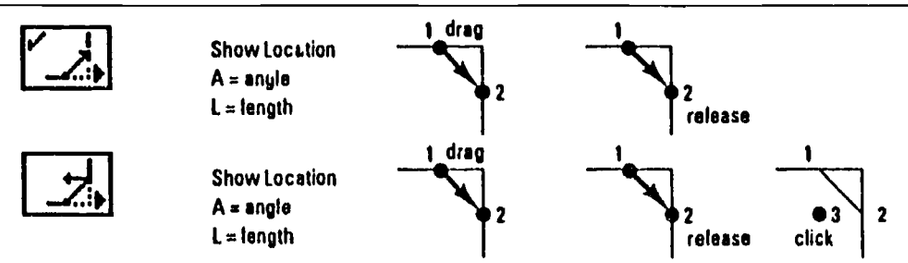
Use arrow keys with Autogrid off

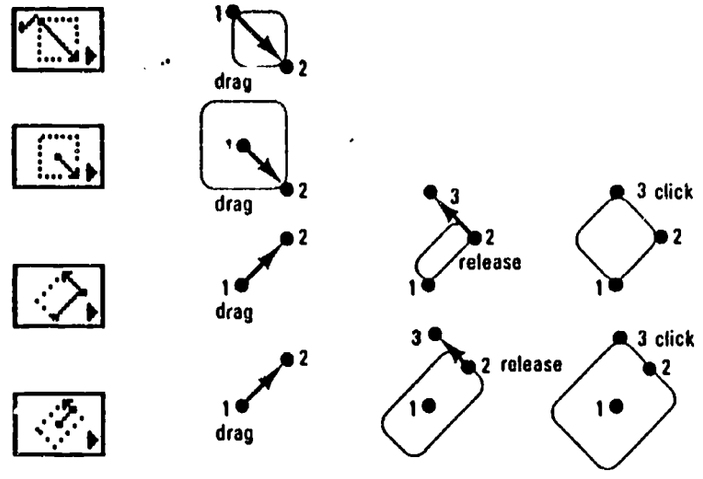
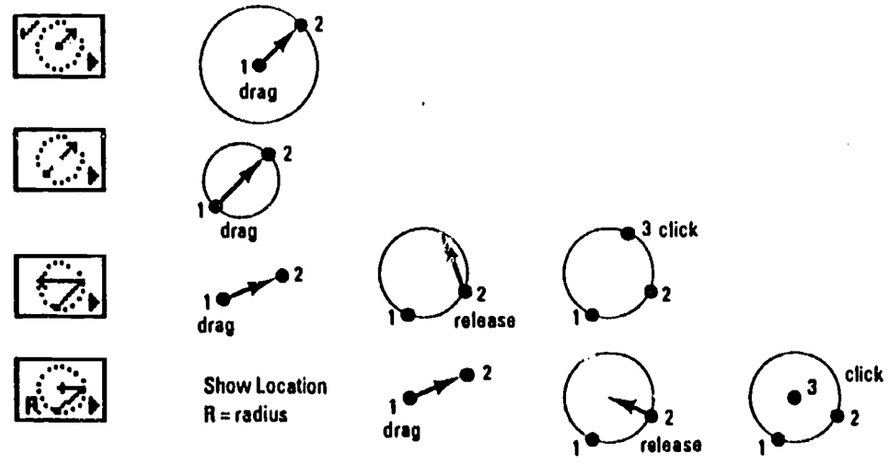
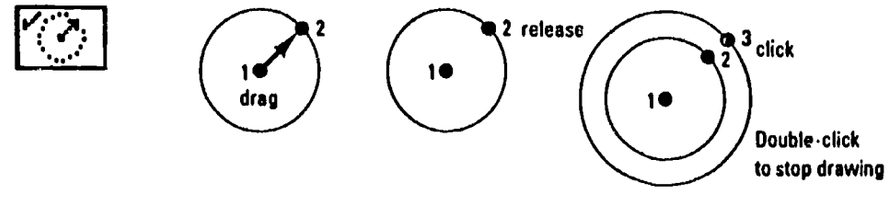
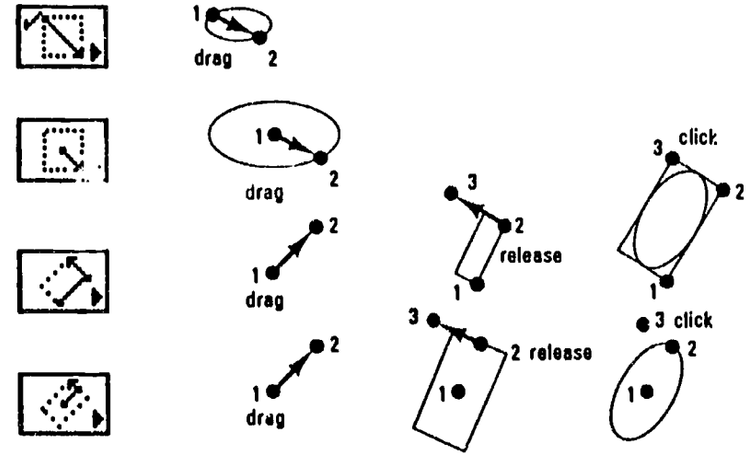
Move an object one pixel at a time



Use arrow keys with Autogrid on

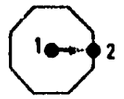
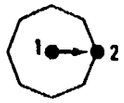
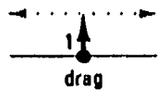
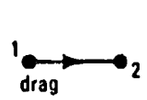
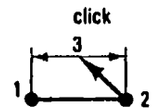
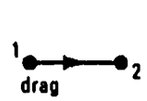
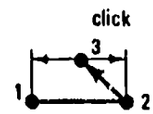
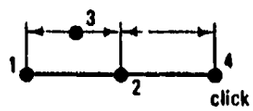
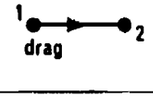
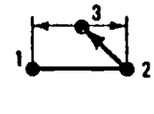
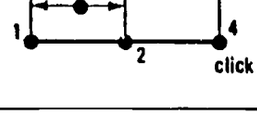
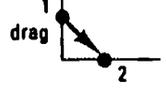
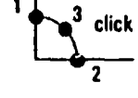
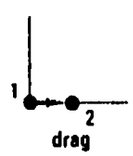
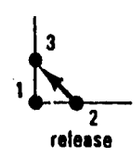
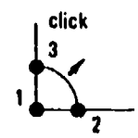
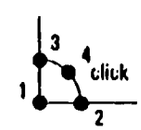
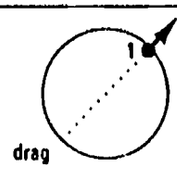
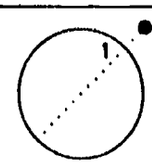
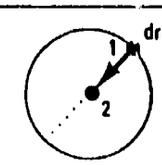
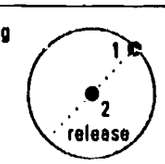
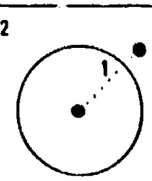
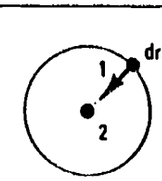
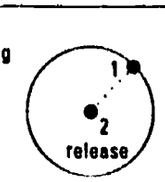
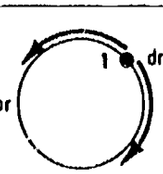
Move an object one gridpoint at a time

Tool	Method
Text	Click and type text (caption text) Drag to set margins (paragraph text)
Lines	
Rectangles	
Squares	
Fillets	
Chamfers	

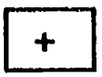
Tool	Method
Rounded rectangles	
Circles	
Concentric circles	
Ellipses	

Using Tools

Tool	Method				
Circular arcs		1 → 2 drag	1 2 release	3 click 1 2	
		2 1 drag			
		1 2 drag	1 2 release	3 click 1 2	click 3 2 1
		Show Location R = radius	1 2 drag	3 2 1 release	
Elliptical arcs		1 → 2 drag			
		1 → 2 drag			
		1 → 2 drag	3 1 2 release	3 click 1 2	
		1 → 2 drag	3 1 2 release	3 click 1 2	
Freehand shapes		1 drag			
Splines		1 2 click	1 2 click	3 1 2	click 3 4 Double-click to stop drawing 1 2
Polygons		1 2 click	1 2 click	3 2 1 Double-click to stop drawing	
Double lines		1 click	Show Location W = width	1 2 click	Double-click to stop drawing
		1 click	Show Location W = width	1 2 click	Double-click to stop drawing
		1 click	Show Location W = width	1 2 click	Double-click to stop drawing

Tool	Method
Regular polygons	how Location = number of sides  Show Location S = number of sides 
Linear dimensions	    (dimension text appears at point 3)
Chaining dimensions	   (dimension text appears at point 3) 
Datum dimensions	   (dimension text appears at point 3) 
Angular dimensions	   (dimension text appears at point 3)     (dimension text appears at point 4)
Diametral dimensions	  release (dimension text appears at point 2) or   (dimension text appears at point 2)
R dial dimensions	  release (dimension text appears at point 2) or   (dimension text appears at point 2)
Circle center marks	 or  (to rotate center mark)

Using Tool Modifiers

Select:	Press:	To Locate:
	N	a point with No modifier
	E	an End point on an object
	C	the Center of an object
	I	an Intersection of two objects
	J	an invisible intersection (Junction) of two converging objects

Select:	Press:	To Locate:
	U	a point Upon an object
	B	a Box corner of an object
	F	a percentage oF object's length, the amount appears in the location bar

Using Geometric Constraint Modifiers

Select:	Press:	
	P	force a line to be Perpendicular to an object
	T	force a line to be Tangent to an object
	O	create an object that is Offset (parallel or concentric) to an existing object

Using Selection Tool Modifiers

	Resize	Click  or  drag handle
	Trim ⇧⌘R	Click on a selected object to cut a line, circle, or arc; or Drag to cut a section; or Hold down Command and drag along a second object to specify the amount to be trimmed
	Reshape ⌘R	Drag handle to reshape Click unsmoothed freehand shape or polygon to add handle Option-Click to eliminate handles on freehand shapes and polygons

	Rotate ⌘T	Click  or  drag handle
	Mirror ⇧⌘R	Hold down Command, position pointer, press mouse button, position axis, release mouse button

Location Bar

✓X	1"	Y	-2"	H	-1.0139	V	-0.9861	A	224.204	L	1.4144"

Location bar

X = absolute X coordinate

Y = absolute Y coordinate

H = horizontal distance from last point

V = vertical distance from last point

A = angle from last point

L = length from last point

Click or press Tab to select the next parameter, type in the desired amount, and press Enter to accept the settings.

Location bar parameters that appear with tools, positional modifiers, or selection tool modifiers:

✓W	1/8"	Sets width for double line tool
✓S	1	Sets number of sides for a polygon or the number of segments to be trimmed with the trim tool
✓R	1/4"	Sets radius for circle, circular arc, and fillet
✓D	0.559"	Sets the diameter for circle and concentric circle
✓%	50.000	Sets the percent for percent tool modifier

Setting Up a Document

Change document size	Layout → Drawing...
Select page size and orientation	File → Page Setup...
Show or hide rulers	Layout → Show/Hide Rulers
Show or hide page breaks	Layout → Show/Hide Page Breaks
Show or hide gridlines	Layout → Show/Hide Gridlines
Turn Autogrid on or off	Layout → Turn Autogrid On/Off
Place grid in front of objects	Layout → Preferences...
Change rulers	Layout → Rulers...
Set mouse constraint	Layout → Preferences...
Set Y axis	Layout → Preferences...
Select an arrowhead style	Pen → Arrows...
Select a dashed line style	Pen → Dashes...
Select pen sizes	Pen → Pens...
Add specific font and font size to Font menu	Font → Set Style (Choose a font, font size, and style first)
Show or hide Show Location bar	Layout → Show/Hide Location
Show or hide tool modifiers	Layout → Show/Hide Modifiers
Show or hide pattern pallete	Layout → Show/Hide Patterns
Choose a drawing standard	Layout → Drawing...
Choose dimensioning specifications	Layout → Show/Hide Dimensions

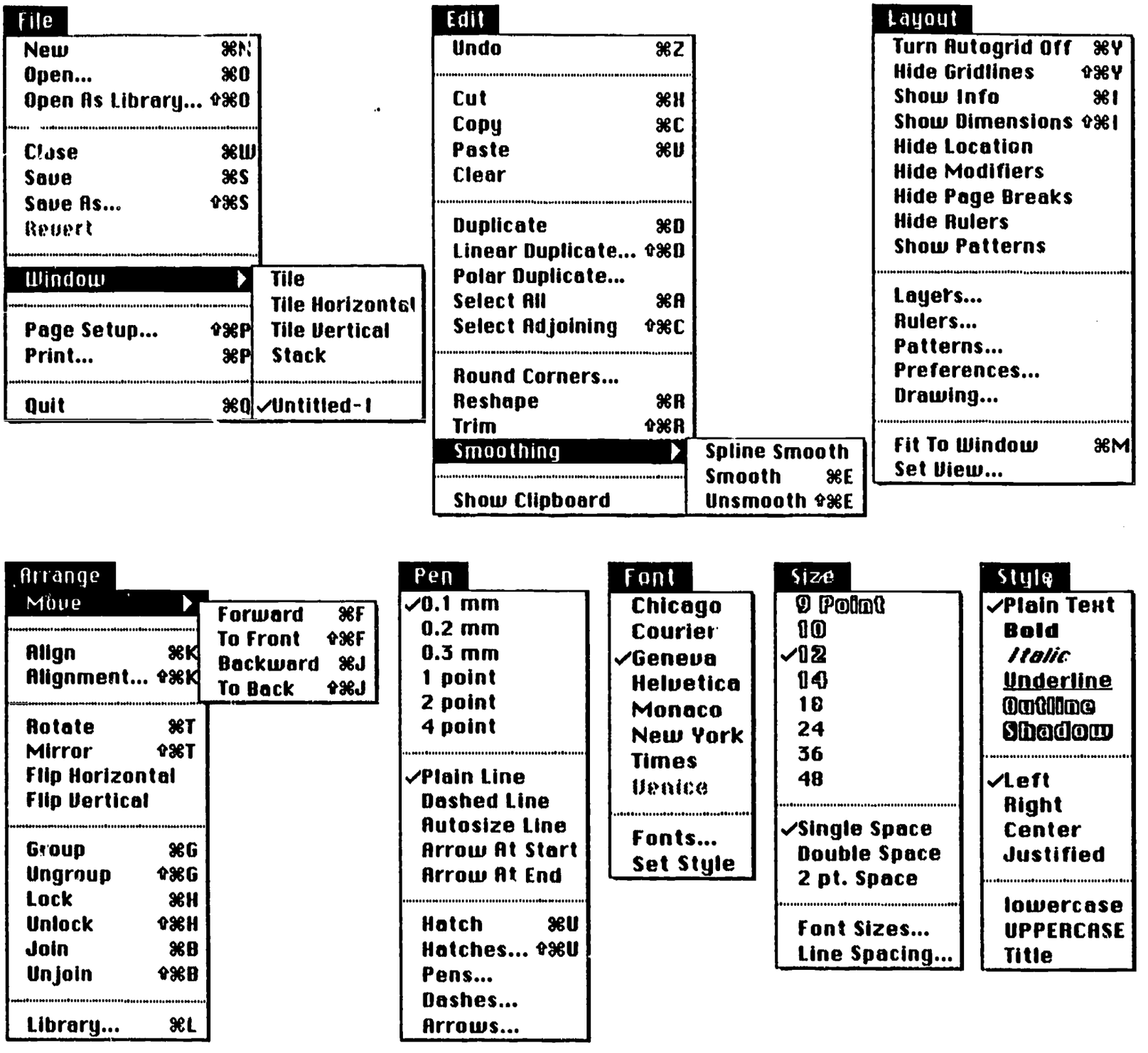
Using a Symbol Library

Add an object to a document's library	Select the object **Arrange** **Library...**
Open a library document	**File** **Open As Library...**
Place a library object in a document	Click library object name in the Library window **Edit** **Copy** and Click in document **Edit** **Paste**

Working With Layers

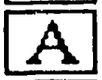
Work with objects on several layers	**Layout** **Preferences...**
Create a new layer	**Layout** **Layers...** **New**
Activate a different layer	**Layout** **Layers...** Double-Click **Layer Name** Or Click ▲ or ▼ layer controls
Display a hidden layer	**Layout** **Layers...** Click a layer name **Show**
Hide a layer	**Layout** **Layers...** Click a layer name **Hide**
Delete a layer	**Layout** **Layers...** Click a layer name **Delete**
Select an object on a different layer	**Option** Click

Claris CAD Menus



Tools With Pop-Up Choices


Selection Arrow


Text

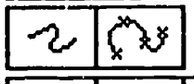

Line


Rectangle • Square


Fillet • Chamfer • Rounded rectangle


Circle • Concentric circle • Ellipse


Circular arc • Elliptical arc


Freehand shape • Spline curve

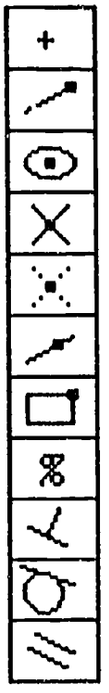

Polygon • Double line • Regular polygon


Linear dimension • Chain dimension • Datum dimension


Angular dimension


Diametral dimension • Radial dimension • Circle center

Modifiers


Any point

End point

Center

Intersection

Invisible intersection

Point on

Corner

Percent

Perpendicular

Tangent

Offset

Methods With Pop-Up Choices


End-point-to-end-point • Center-to-end-point • Constructi


Corner-corner • Center-corner • Three-corner • Center-edge-corner

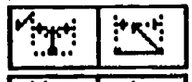

Two-point • Three-point


Two-point • Three-point


Center-edge • Edge-edge • Three-edges • Radius-edge-edge


Center • Lower • Upper


Center-edge • Center-vertex


Two-point • Three-point


Three-point • Four-point

Selection Tool Modifiers With Pop-Up Choices


Resize • Trim • Reshape • Rotate • Mirror