
DESIGN YOUR OWN HOME™

Architectural Design™

Created by Don Fudge



Apple version

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Created by Don Fudge

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AVANT-GARDE

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DEDICATION

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WELCOME TO ARCHITECTURAL DESIGN

Welcome to ARCHITECTURAL DESIGN, one of three computer aided design programs in Avant-Garde's DESIGN YOUR OWN HOME series. This architectural design system allows you to create quick, precise architectural plans. You can create floor plans, top views and side views of buildings, save them as picture files on disk, and print them out on your printer. You can label your plans as you wish before saving and provide your plans with formatted keynotes.

Apple graphics become incredibly easy in this program — it takes only a touch of a key to choose from 126 different floor plan and architectural detail shapes, and it takes just another touch to rotate them. The floor plan creation commands are so simple a child could learn them in five minutes. You can move floor plan shapes about the screen quickly and efficiently via paddles, mice, or joysticks. (We prefer paddles.)

This is the perfect package to turn the house or other building plans in your head into floor plans on screen or on paper. All lengths, diagonals, and angles are calculated for you on screen BEFORE YOU EVEN DRAW YOUR LINES. Simple mouse- or paddle- or joystick-controlled cursor movements are all it takes to get readings on vertical lengths, widths, and diagonals. It's just as easy to get a reading of an angle and its complement/supplement. The program performs instant conversions to meters from feet, or from decimal feet to feet and inches. You can just as easily switch from mixed text-plan to full-screen graphics. You

can draw dotted, continuous, center, dashed, and colored lines, and lines from 1 to 9 dots thick.

Why get involved in time-consuming, messy, error-prone hand-drawn designs when you can hit a few keys and create a floor plan or other structural plan quick as a wink — and have a great time doing it?

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INTRODUCTION

SYSTEM REQUIRE- MENTS

Apple* II, II+, IIe, or IIc
48K

One or two disk drives

ARCHITECTURAL DESIGN Program Disk

ARCHITECTURAL DESIGN Data Disk

Mouse, paddles, Koala Pad*, or joysticks

Printer with hi-res output capabilities recom-
mended (optional)

*Apple is a registered trademark of Apple Computer, Inc.

*Koala Pad is a registered trademark of Koala Technologies
Corporation.

INITIALIZING A DATA DISK

Your ARCHITECTURAL DESIGN program is accompanied by a Data Disk containing sample house plans for you to look at, modify, and save under new filenames. When your Data Disk is full, you may save new files or copy some of the Data Disk's files to another disk.

Before you can copy files to your new disk, you have to "initialize" it.

With the computer off, insert the DOS 3.3 System Master disk in Drive 1. Close the door of the disk drive and turn the computer and monitor on.

Remove the System Master disk from the drive and insert a disk to be initialized in Drive 1. You can use either a new, blank disk, or a disk containing files you no longer wish to keep. Initializing will remove the old files.

Type NEW and
press <RETURN>

Type 10 REM and
press <RETURN>

Type INIT HELLO and
press <RETURN>

When the disk stops spinning, it will be initialized. It will boot and accept files that you save to it.

COPYING FILES

A program on the Apple DOS 3.3 System Master disk called FID allows you to copy programs or files from one disk to another. Use this program to copy some of your data files from the program's Data Disk to your initialized data disk when the program's Data Disk gets full:

With the machine off, insert the System Master disk in Drive 1. Close the drive door and turn the machine on.

When the DOS prompt] appears,

type BRUN FID and
press <RETURN>

You should see a menu containing several disk utilities.

Type 1

for Copy Files and press <RETURN>. Respond to the screen questions about your source and destination slots and drives. Normally, the source and destination slot is #6. If you have changed the slot that the disk controller card occupies inside the computer, enter its new slot number. Then enter Drive 1 and Drive 2 or Drive 1 (twice) if you have only one drive.

To the prompt FILENAME? enter the name of the file that you want to copy from the source disk.

Follow the screen directions for inserting disks in the drive(s).

When the copy is complete, the program returns to the FID main menu.

USING YOUR DATA DISK

Now you may use your data disk as if it were the one that came with the program.

When you catalog your program Data Disk, note the second line at the top of the screen. It says something such as 233 FREE. This number tells you how many sectors of space you have for storing data on the disk. This number decreases as you save more files and use more space. If you look at the numbers at the left of the filenames in the catalog, you can see how many sectors each one takes up. Picture files, for example, take up 33 sectors of storage.

The program will tell you when your disk is full. In order not to get a "disk full" error, initialize a new disk when you have about 033-035 sectors left. Once you've initialized a new disk, FID (copy) any appropriate files and use the new data disk to create and save new files.

It's a good idea to back up your data disk by using the COPYA program on the 3.3 System Master disk. With a backup copy, you can experiment and change data disk files without losing them forever.

Back up your data disk frequently as you create your own designs. You don't want to lose them; backup disks keep this from happening.

GETTING STARTED

Insert the ARCHITECTURAL DES!GN Program Disk in your disk drive. Turn on your Apple II, II+, IIe, or IIc. Make sure the paddles, mouse, or other peripheral is hooked up properly and that your <CAPS LOCK> key is down.

After you read the title screen,

press the
<SPACE BAR>

Tell the program how many drives you have. It assumes Slot #6, Drive 1 (and 2). If you have one disk drive, the program will give you on-screen disk-switching instructions from time to time. That's why it needs to know now how many disk drives you have.

- (In this manual, special notes or warnings are set out with wedges ► in the margin to call them to your attention.)

TRYING OUT THE SYSTEM

From the main menu,

type 1

Study the Menu for Architectural Design. You can draw floor and other structural plans, but that's only the beginning. You can save these plans, retrieve them, and print them out on your printer. You can delete old pictures, erase the screen you're working on, catalog the disk to search for pictures, and insert formatted text or any number of labels. Choose the screen and shape scales, and the main menu's Option

2 allows you to even draw, save, and use your own custom plan shapes.

After you've reviewed the Architectural Design menu options, it's time to try some plan drawing.

Type 2

to select a Scale for the Screen. Scale refers to the horizontal screen dimension. What width do you want the screen to represent? Try the default width of 100 feet.

Press <RETURN>

to leave the scale as it is, and you return to the Menu for Architectural Design. Then

type 1

to Draw Plan. You see a screen of Line Commands, followed when you

press the
<SPACE BAR>

by a screen of Shape Commands and Screen Commands. (The commands on these screens appear on your Command Card as well.)
When you

press the
<SPACE BAR>

to continue, you see a blinking cursor on a blank screen except for the six categories of

figures at the bottom. Notice how the numbers change when you move the cursor with paddles, joystick, or mouse.

Press the period (.)

to start a line. Now move the cursor a few inches in any direction and

press the comma (,)

A section of outside wall appears on the screen. Now move a few inches in another direction and

press the comma (,)

Another section of outside wall appears on the screen. You now have an outside wall corner. Now you can see how to move the cursor twice more, pressing the comma (,) each time, so that you end up with a nice rectangle.

If you want more perfect corners — no problem. Simply use the left side caret (<) the next time. Go ahead and try making a small rectangle. To start fresh, press the period to start a new line upon reaching your starting point. Make sure you don't get too close to screen edges when you draw thick lines, or there won't be room to draw them. If they don't appear, move them in from the edge.

For thin lines to use as room partitions, windows, doors, etc., try pressing the dash (-) rather than the comma each time you complete a paddle move. For diagonal lines, move BOTH

paddles before pressing the dash again. For dotted lines, press the semi-colon (;) after each paddle move. Go ahead now — move the paddles and press the comma (,), dash (-), semi-colon (;), left side caret (<) — and try the exclamation point (!). For fresh starts, of course, use the period (.).

Once you've gotten the idea,

press the slash (/)

to Choose Line Color and

type 5

for orange. Now move the cursor around and press the comma (,) or the dash (-) and notice the difference in your lines.

Press the slash (/)

and

type 3

to go back to white (1) — the normal color — again.

Ignore the numbers under the screen for now and try some plan shapes.

Press B

for Bathtub. If it's superimposed on the lines, move the paddles until it's free. Press the <SPACE BAR>, Button #0, or the <OPEN

APPLE> . The bathtub is now printed on the screen.

Press B again

but this time press B several times before you print with the <SPACE BAR>, Button #0, or the <OPEN APPLE>. You may choose your orientation (rotation) with this feature, and you may move the bathtub with the paddles some more before you place it. But what about diagonal orientations?

With the cursor blinking,

press <RETURN>

to see a submenu that offers you five options. You select a shape by typing a number from 1 to 126. (You can also see the commands or the shape descriptions, return to drawing, or go back to the Architectural Design menu from this submenu.) To determine which shape number you want,

press <RETURN>
again

to go to the Shape Descriptions.

First you see a screen of alphabetical commands (notice that B = Bathtub). Then, when you

press the
<SPACE BAR>

to continue, a screen of number commands appears.

Press the
<SPACE BAR>

to see succeeding screens, through 126 shapes. Notice that the bathtub is represented by both the letter B and the numbers 53 and 54. Now

press <RETURN>

at the final Shape Description screen to go back to the submenu and

type D and
press <RETURN>

to go back to your drawing. The difference between using letters to select shapes and using numbers is that you can enter a letter-designated shape directly as you're drawing on the screen, but you must first press <RETURN> in order to enter a number-designated shape. Pressing B gets you the bathtub also represented in Shape 53, which has perpendicular orientation. But for a diagonal tub, you must press <RETURN>, type 54, then press <RETURN> again to go back to the plan-drawing screen. Rotate the tub in four perpendicular directions with any key except <RETURN>, <ESC>, or the <SPACE BAR>. Place the shape with the <SPACE BAR>, Button #0, or the <OPEN APPLE>. Shapes appear on the diagonal only if they are identified as diagonal (except 0 or 70, which are Open Door) in the Shape Description screens.

Now

press the asterisk (*)

(requires the <SHIFT> key), and

press the asterisk (*)
again

That's how easy it is to switch between mixed (text and graphics) screens and full (graphics) screens. Press the asterisk (*) again and draw something at the bottom of your screen. Now toggle the mixed/full switch (asterisk) again. You see — the drawing doesn't get erased — it merely disappears. Use the full screen mode when you need the space.

To return to the Menu for Architectural Design,

press <ESC>

Type E

for Erase Screen, read the warning, and

type Y and press
<RETURN> twice

to return to the Menu for Architectural Design. Now

type I

to go back to your newly erased drawing screen and find out what those numbers at the bottom of the screen are all about. Put the cursor center-screen and press period, which

not only starts a new line but resets the figures in the group of lines called the Dimension Calculator. Move Paddle #Ø (horizontal), the mouse, or the joystick right 2 inches or so, until Sideways reads approximately 27.5. The numbers are unsteady to the degree that your paddles, mouse, or joystick is not a perfect instrument. You've gone a little more than one-quarter way across the screen. Your scale, remember, is 100, and $100/25 = 4$.

You've just measured off approximately 27.5 feet in an imaginary house. Now move the cursor upwards a couple of inches until the Up/Down reading is 15 feet. You're now 27.5 Sideways from the original starting dot and offset 15 from the original dot. The diagonal line that connects the starting point with the current cursor location is going to be longer than either the horizontal or vertical offsets (distances perpendicular with each other). The Diagonal reading is 31.3. When you

press the plus (+)

(use the <SHIFT> key), you toggle to feet-inches dimensions rather than decimal-feet dimensions, and the diagonal becomes 31'3.8".

But what about the angles? We've explored Scale, Sideways, and Up/Down, and Diagonal offsets, but now we need to check out the angles. You might get a 29.25-degree angle and a 60.75-degree angle. The second is the complement of the first. The complement is 90 degrees minus an angle (on the screen designated by 90-Angle:); the supplement is

180 degrees minus an angle. Add 90 degrees to the 90-Angle figure to get the supplement.

If this doesn't make sense, press the dash, move Paddle # 1 (vertical) down until Up/Down reads 15'; press the dash, then move Paddle # 0 (horizontal) or the mouse back to the original starting point and press the dash. The angle at the starting point is 29.25, and the other angles are 90 degrees and, opposite that, the origin angle's complement, 60.75 degrees. For an easier way of seeing complementarity, move up 15' and right 27.5', pressing the dash at each pause. The two right angles in this rectangle divided by the diagonal have 29.25-degree and 60.75-degree angles in them and obviously add up to 90 degrees. They are therefore complementary.

The implications of these dimensional and angle features should be clear: you can know immediately, without even drawing, how far any point on the screen is from any other point; what the horizontal and vertical offsets are; and what angle the second point is from the first in degrees, including complementary angle size.

Press <ESC>

to return to the menu and

type 7

to get each of the following pictures from the data disk onto the hi-res screen: HOUSE,

HOUSE2, DECK HOUSE. (Of course, you can have only one on the screen at a time.) Look at **STANDARD DETAIL FORMAT** and **STANDARD DETAIL FORMAT.KEYNOTE** to see how a professional might use the program to do some detailed planning. These pictures give you an idea of the kind of work you can do with the **ARCHITECTURAL DESIGN** system, and this demonstration should have given you some ideas about how you can achieve these designs.

THE MENU FOR ARCHITECTURAL DESIGN

The main menu for the Architectural Design part of the program looks like this:



```

MENU FOR ARCHITECTURAL DESIGN
.....
**
PLAN CREATION:      **   PLAN UTILITIES:
**
(1) DRAW PLAN       **   (6) SAVE PLAN
**
(2) SCREEN SCALE    **   (7) GET PLAN (DISK)
**
(3) SHAPE SCALE     **   (8) DELETE PLAN
**
(4) FORMAT TEXT     **   (9) PRINT PLAN
**
(5) ADD LABELS      **   (E) ERASE SCREEN
**
.....

(C) SEE COMMANDS    (V) VIEW SCREEN
RETURN CATALOG      ESC # DISK MENU
    DISK

(1-9, E, C, V, ESC, RETURN):
```

Let's look at the options at the bottom of the screen first.

(C) COMMANDS

When you type C for Commands from the Menu for Architectural Design, you see the Line Commands first. When you press the <SPACE BAR> to continue, you go to the Shape Commands and the Screen Commands. To refer to these commands while you're working on the drawing screen, type <RETURN>. You can also look at these

commands on the Command Card that comes with this package.

- (V) VIEW SCREEN** This option takes you from the Architectural Design menu to the screen you are working on.
- RETURN CATALOG DISK** You can look at your DOS 3.3 data disk's file-names from the Architectural Design menu if you press <RETURN>.
- ESC DISK MENU** Pressing <ESC> from the Architectural Design menu takes you back to the two-option menu for the Program Disk, where you choose either the Architectural Design or the Customized Shape Utilities option. Before you return to this menu, you are warned that this move will erase the screen you've been working on, and you're asked to verify that this is what you want to do.
- PLAN CREATION** Several options are offered under the Plan Creation part of the Menu for Architectural Design. Let's take them up in order.
- (1) DRAW PLAN** This option takes you directly to the drawing screen and allows you to draw plans on the screen with a variety of line types and colors. You can specify line lengths, measure areas, and look at your dimensions in decimal feet, feet and inches, or metric figures. And you can install a number of shapes and architectural details. If you haven't yet, go through the Trying Out the System section of the introduction to this manual. We'll review the Line, Shape, and Screen commands here. You may also consult the Command Card that comes

with this package to refresh your memory of the commands.

LINE COMMANDS

Period (.) = begin line or draw a dot at this specific cursor location. You always begin your drawing with this command, but you'll find yourself using it many more times than once in a drawing. For instance, if you drew a washbowl and then moved the cursor several inches away to draw a stairway, you would not want to press the dash and get a line drawn between washbowl and stairs. You'd press J for stairs and continue. But if you just drew a bathtub and your next creation was to be a line, you'd move the cursor to the line's starting point and press the period.

Dash (-) = draw a line one dot thick from the last dot (or the last shape drawn) to the present cursor position.

Semi-colon (;) = draw a dotted line as above. This dotted line looks best when it's drawn with Color 3 or Color 7(white).

Apostrophe (') = draw a dashed line as above. As with the dotted line above, Color 3 or Color 7 is recommended. (This command requires the <SHIFT> key on the Apple II+.)

Exclamation Point (!) = draw a center line, as above. This gives you a white center line (requires the <SHIFT> key).

Slash (/) = choose line color or line length. Choose 1 for green, 2 for violet, 3 for white, 5 for orange, and 6 for blue. Use 4 (black) to

erase 5, 6, or 7 (white use Ø (black) to erase 1, 2, or 3 (white).

Or type L, which means you want to choose a line length. First choose N, E, S, or W for the direction the line should go from the last plotted line/point or shape. (This command will not work with diagonal lines.) Then enter a number relative to your current scale. This enables precise line lengths, should you need them.

Numbers (1-9) = choose thickness for either comma (,) or left side caret (<) commands. Type a number before pressing the comma (,) or the left side caret (<). (The left side caret requires the <SHIFT> key.)

Comma (,) = draw thick line (outside wall) from last point.

Left side caret (<) = draw thick line (outside wall) from last point and square off any corners created. (This command requires the <SHIFT> key.)

<CTRL> <F> = straighten horizontal or vertical white lines drawn with the dash (-). This command will straighten horizontal lines in both Color 3 and Color 7. It's a "snap line" option." When a line is close but still off a bit, <CTRL> <F> will snap it back into place and your next line will continue from that fixed (new) endpoint. The <CTRL> <F> option works after the dash (lines one dot thick) command, and works far better with simple white lines than with colored. With colored lines that need a fair degree of straightening, the fix will sometimes leave a

dotted afterimage of the original line. It may work just fine with some special lines (dotted, dashed, etc.), but that's not guaranteed.

SHAPE COMMANDS

Letter Key = choose a shape (A-Z). After you've pressed a letter or number to choose a shape but haven't yet pressed the <SPACE BAR> to print the shape, pressing the letter key again rotates the flickering shape. When you press T for toilet, for example, if you prefer a different shape orientation just press T again until the orientation is correct. Each key press causes a 90-degree clockwise rotation.

Notice that the most common and useful shapes may be accessed by either letter or component number. "Bathtub" is often used, and therefore a simple B gets it, but pressing <RETURN> to enter a Shape Number and typing 53 and pressing <RETURN> also works. And typing 54 gets you a diagonal bathtub.

Arcs are used mostly for door-clearance indicators and to show door-opening direction.

Steps can be used, additively, to create longer stairways. They can also be used to show windows with shutters or storm windows on the outside (insert in a thick outer wall gap). Since there are four 90-degree rotations possible for each of the 126 shapes in the shape table, shapes with diagonal representations (such as washbowls, bathtubs, toilets, doors, curved stairs, and steps) have a total of 8 possible rotations.

RETURN = choose number shapes 1-126.

ESC = erase flickering shape. When you've just pressed D for door but haven't printed it yet (with Button #0, mouse button, or the <SPACE BAR>), <ESC> will let you change your mind and NOT draw a door. If no shape is flickering, <ESC> returns you to the menu, where you may use other menu options or return to the drawing screen.

SPACE BAR, Mouse Button, or Button #0 = print your shape via either DRAW or XDRAW, depending upon the toggle setting performed by the colon. See Colon (:) under Screen Commands, below.

SCREEN COMMANDS

Right side caret (>) = erase a paddle- or mouse-defined area. When you press the right side caret (>) (requires <SHIFT> key), you hear a beep and then clicking. Move the cursor to the upper left corner of the section of the screen you'd like to erase. Press the <SPACE BAR>. Then move the cursor to the lower right corner of the section you want to erase. Press the <SPACE BAR> again, and a rectangular area that you've defined by two of its corners will be erased. If you try to erase up to the edge with this option, you might get some "residue" at one edge. If so, position the flashing cursor over the residue, and, depending on how much you have to erase, use X, Y, or Z to erase.

Colon (:) = DRAW/XDRAW Switch. (This command requires the <SHIFT> key).

Pressing the colon will set the shape you print to the opposite of its present setting. XDRAW is good for erasing components. It is also useful for differentiating shapes when you have several on top of or near each other. If you're in XDRAW mode, you may draw a complementary-colored shape on top of previously drawn white or colored shapes.

Plus (+) = feet-inch/decimal switch. This will change measurements such as 3.5' to 3'6".

Equal sign (=) = temporarily convert feet dimensions on the screen to meters with a .3048 conversion factor. This command assumes, when it executes, that it's dealing with feet dimensions. If you're already in a metric scale, this option will give you nonsense (but not an error report).

Asterisk (*) = full screen/mixed screen switch. Toggle to full screen when you need the entire screen for an especially big floor plan; press the asterisk (*) again to see the Dimensions Calculator lines reappear at the bottom of the screen. (The asterisk (*) command requires the <SHIFT> key.)

(@) = see areas of the triangle and square that utilize the latest diagonal screen displacement as their geometric diagonal (requires the <SHIFT> key).

(2) SCREEN SCALE

This option allows you to determine the scale your screen will represent as you design your plan. You can scale your drawings in feet or metric measures. You can choose a number

from 1 to 800 or choose to work with a standard architectural scale.

(3) SHAPE SCALE

Choosing this option allows you to change the scale of your shapes from the program's default value of 1. Note that not all shapes scale well. All rectangles scale perfectly, however.

A shape scale of more than 1 works best on rectangles, squares, doors, and similar simple rectangular shapes — the majority of the shapes look best in Scale 1.

Sometimes it's best to improvise, and the Shape Scale helps you. A door might make a great bookshelf, for example. You can enter huge scales (up to 255), but they may be "out of sight"!

(4) FORMAT TEXT

This option allows you to embellish and detail your plans with formatted keynotes, which, like the labels in (5) Add Labels, may be normal or bold. Use <ESC> to switch between upper and lower case.

► Never backspace over an upper/lower case switch.

Before you choose this option, place the cursor where you'd like the text to begin. The computer tells you how far the cursor is from the top of the screen so that you can make adjustments and know exactly where your text prints.

If you want to use the format option, plan ahead. Make sure you leave some room

somewhere on the screen for your keynotes, preferably at the bottom. Either Option 5 (Add Labels) or this option works for your plan title (bold or normal) and short (under 36 characters) labels. With Option 5 (Add Labels), it's easier to place the labels precisely where you want them on the screen. But Option 4 gives you the opportunity to keynote your plan with up to 239 characters formatted with horizontal tabs, that can be entered and printed on the screen.

- We recommend that you use Option 5 for short labels and Option 4 for more extensive formatted text applications, such as keynotes.

Let's look now at **BOLD** characters. When you want all bold characters, you simply choose that option when asked. If you want normal text, choose that when asked. But for combinations of bold and normal text in one formatted text block, you must do several labels or keynotes, changing from bold to normal before printing each as appropriate.

If you happen to print your keynote too many lines from the top and the keynote tries to get printed off-screen, there will be no error report — instead you'll get characters superimposed upon each other at the bottom VTAB of the screen. Don't use over 239 characters in a text block. (You'll be stopped at the asterisks and question marks.)

(5) ADD LABELS

This option lets you place labels (normal or bold) anywhere on the screen (vertically or horizontally). All numbers and characters are

available for labels. Use <ESC> to switch between upper and lower case. Upper case appears as inverse on the screen.

Never backspace over an upper/lower case switch, or your label prints with missing characters.

To erase a label, type a new label composed of a series of "spaces" and put the cursor at the original label's starting place. Or use X, Y, or Z to erase characters.

PLAN UTILITIES

The Menu for Architectural Design continues with Plan Utilities. These utilities allow you to save, retrieve and view, delete, and print your plans and erase the screen. We'll take them up in order of their appearance on the menu.

- (6) SAVE
PLAN** Use this option to save Hi-Res Screen One as a hi-res memory-copy picture file on your data disk.
- (7) GET PLAN
(DISK)** This option loads a disk-stored hi-res memory-copy picture onto the screen and lets you view it. You may change it and save it again if you like, with the same or a new name.
- (8) DELETE
PLAN** This option lets you delete any of the plans from your data disk.
- (9) PRINT
PLAN** With this option you can print or "dump" any plan or 33-sector picture on the hi-res screen, provided your printer has hi-res printing capabilities.

We suggest that you install your printer format right after you boot the disk and see the titles. Consult this manual's appendix on Printer Format Installation.

Once you have installed your printer format,

type 9 and
press <RETURN>

You are asked to turn on your printer. Make sure it's ready, and press the <SPACE BAR> to continue. Now you can print out any picture currently on your screen. Or use <ESC> to forget about printing and return to the menu.

When your printout is finished, you automatically return to the menu.

(E) ERASE SCREEN

Use this option when you want to start a new plan. Then

press the
<SPACE BAR>

to continue.

Notice that there are many sizes of filled or unfilled squares, circles, arcs and rectangles — and four erase sizes. Use E for a small erase and X, Y, and Z for bigger erasing blocks. Z is biggest. However, the best way to erase is the right side caret (>) command.

CUSTOMIZED SHAPE UTILITIES

The 126 letter and number shapes and architectural features that come with the program can be rotated, combined, and recombined for a variety of uses. But the time may come when you'll want to come up with your own shapes. When you're ready to design your own shapes and architectural features,

type 2

for Customized Shape Utilities from the disk menu. The Customized Shape Utilities menu appears:



CUSTOMIZED SHAPE UTILITIES

- (1) EDIT SHAPE TABLE
 - (2) VIEW SHAPE TABLE
 - (3) RESTORE ORIGINAL SHAPE TABLE
- (1-3 OR ESC TO RETURN TO MAIN MENU):

1. EDIT SHAPE TABLE

When you edit the shape table, be sure that you edit the shapes on just one side of your disk. That way you can restore the original shapes to your disk from the other, unaltered side, should you want to.

Type 1 from this menu. You see a screen asking whether you want to return to the disk menu (<ESC>) or continue (<SPACE BAR>). If you choose to continue, you are asked which shape you want to edit. Before you go any further, take a look at the shape pictures that come with the manual. Choose a shape you think you can do without and that is

approximately the same size as the shape of your own design. (#77 is the cursor, and, of course, should not be edited.) This last criterion insures that the new shape takes up no more memory than the original program shape did. To check this, compare dimensions. Remember, the diagonal of a right triangle takes up as much memory as the other sides combined.

On a piece of paper, draw your new shape in both its perpendicular and diagonal orientations (if it substitutes for a program shape with a diagonal view). Draw your shape rotations on a piece of graph paper. Put a dot to stand for a pixel in each square of the graph paper. Diagonal views show up on the screen with a slight distortion when they're drawn exactly to the scale of the other views. We suggest that you multiply dimensions in your diagonal views by .7 to "correct" this to the eye.

Now get ready to enter your new shape on the screen, one dot at a time. After a warning that you should always plot an extra dot to close up your lines as you finish your shape, you see the shape editing screen commands:



P = PLOT ON/OFF SWITCH
I, O, K OR L, COMMA, M, N, J, U = DIRECTION
(FOR MOVE ONLY OR PLOT-MOVE)
E = EDIT LAST POINT ONLY
CTRL F = FINISHED DRAWING
CTRL E = START SHAPE OVER
? = THIS COMMAND PAGE

(PRESS SPACE TO CONTINUE)

Then you are advised to finish your drawing with `<CTRL> <F>` as soon as you're done, or as soon as your drawing takes up a certain number of bytes (as many as the shape it replaces took up).

Press the
`<SPACE BAR>`

to go on to the drawing screen.

On the drawing screen you see a dot-sized cursor and, in the lower right corner, three lines:



PLOT MODE: OFF
SHAPE: [You chose this number]
BYTES USED: 4

Press `P` to turn your PLOT MODE ON. Use the keyboard (`I`, `O`, `K` OR `L`, `COMMA`, `M`, `N`, `J`, `U`) to draw your shape with lines that can go in eight directions from the cursor position. When your cursor meets another line to close your shape, make your line an extra dot longer. Don't worry — it won't show up on your finished drawing. The last dot that you plot on screen doesn't get saved; it's really your arrow that points the way, not your plotter.

With PLOT MODE OFF, you can move the cursor in any direction to any location without producing a line from its last point of origin. Then, when you're ready to start a new, separate line, type `P` for PLOT MODE ON. When you're ready to use `P` to turn off plotting, remember to do one extra dot plot first.

Don't worry; it won't be permanent. Once you type P to move without plotting, the dot will move with you. Draw the line you want plus one pixel and type P for PLOT MODE OFF.

Keep an eye on the BYTES USED line as you draw. You don't want your new drawing to use up any more bytes than the shape it replaces. When your drawing has used up all but one of the bytes allotted it, the program lets you know with a beep and the report that your bytes have reached the limit minus one. You may plot one extra point before you quit.

If your shape doesn't approach the byte limit, when you're finished (with one extra dot-plot!),

press <CTRL> <F>

The screen shows you how your shape looks when it joins the other shapes in the shape table.

Press the
<SPACE BAR>

► You are asked if you want to save the shape in the table called ARCH. If you answer Y for Yes, the shape is saved.

You must save the shape after each edit. You cannot enter several shapes, then save them all at once.

If you answer N for No, you are offered an opportunity to edit another shape. If you answer Y, you are taken back through a series

of screens to enter a new shape number to edit. If you answer N, you go back to the disk menu.

2. VIEW SHAPE TABLE

To take a look at your new shapes and verify that they were saved, or to view shapes that the program offers you,

type 2

from the Customized Shape Utilities menu for View Shape Table. After a brief explanation/description of the shape table, you go to the Shape View Menu:



SHAPE VIEW MENU

(1) SEE ALL SHAPES

(2) SEE A SPECIFIC SHAPE

ESC RETURN TO MAIN MENU

(N) SEE NOTES

(1-2 OR N OR ESC):

2.1. SEE ALL SHAPES

Type 1 to See All Shapes. You see the shape table name, ARCH, and instructions to press the <SPACE BAR> to see successive screens and <ESC> to exit the option.

2.2. SEE A SPECIFIC SHAPE

After you type 2 from the Shape View Menu, you are asked the number of the shape you

want to see. Type the shape number and press the <SPACE BAR> to see the shape, and then again when you are finished. You are offered an opportunity to see another shape or return to the Shape View Menu.

N. SEE NOTES

Typing N from the Shape View Menu sends you to the screen that describes the shape table, the same screen called up by Option 1 of the Shape View Menu.

3. RESTORE ORIGINAL SHAPE TABLE

If you have edited (replaced) some shapes in your shape table but now want to recover the original shapes,

type 3

from the Customized Shape Utilities menu. Follow the screen instructions for turning your disk over to the unedited side, and

press the
<SPACE BAR>

The computer “reads” the unaltered side of the disk into memory. Flip the disk back to the side that you’ve altered and press the <SPACE BAR> to save the unaltered side now in memory to the disk. This “restores” your original shape table.

SUMMARY

In ARCHITECTURAL DESIGN we've tried to make a fast, user-friendly utility for creating hi-res floor plans or other structural plans or sketches on the Apple. The floor-plan shape table contains 126 user-referenced shapes for floor and other types of plans. White walls and colored walls, from one to nine lines thick, are supported by this system. Printouts of the graphics screens are also supported.

This system allows you to create labeled floor plans (or other plans or drawings). Calculations of horizontal, vertical and diagonal offsets, complementary and arctangent-based angles, and areas are offered. Decimal feet to feet and inches conversions, and feet to metric conversions are available as well.

Paddles and joysticks, mouse, and other paddle-port peripherals work with this utility. Joysticks with disconnected spring-back features work well.

If you've enjoyed working with ARCHITECTURAL DESIGN, add INTERIOR DESIGN, and LANDSCAPE DESIGN to your collection of Avant-Garde's Design Your Own Home software. Other computer aided design programs in Avant-Garde's design software series include FLOW CHART DESIGN and ELECTRONIC DESIGN.

APPENDIX

PRINTER FORMAT INSTALLATION

Before you can make a printout from the program you must run the INSTALL program located on the ARCHITECTURAL DESIGN Program Disk.

Insert the Program Disk in Drive 1 and turn the computer on. After the opening screen, you are informed that you have to install your printer format in order to print out your plans. (You do this only once in the lifetime of the program — unless you get a new printer.)

The Printer Installation Menu appears on the screen:



- 1 — EDIT/MAKE A PRINTER FORMAT
- 2 — LOAD A PRINTER FORMAT FROM DISK
- 3 — SAVE A PRINTER FORMAT TO DISK
- 4 — INSTALL PRINTER FORMAT CURRENTLY
IN MEMORY

YOUR CHOICE →

2 — LOAD A PRINTER FORMAT FROM DISK

If you have one of the following printers or a Grappler™ type card, you should enter Option 2, Load a Printer Format from Disk. If you do not have one of the following printers, proceed to the description of Option 1, Edit/Make a Printer Format.

EPSON

- EPSON MX SERIES
- EPSON FX SERIES
- EPSON RX SERIES

™Grappler is a registered trademark of Orange Micro, Inc.

IMAGEWRITER

**IMAGEWRITER
APPLE DMP
SCRIBE**

GEMINI 10X

**GEMINI 10X
GEMINI 15X
GEMINI DELTA
GEMINI RADIX**

SILENTYPE

The program prompts you with the following question:



PRINTER FILE NAME TO LOAD?

At this point you should enter one of the following file names depending on the category above in which your printer appears.

**EPSON
IMAGEWRITER
GEMINI 10X
SILENTYPE
GRAPPLER CARD**

After the file is loaded, the program returns to the Printer Installation Menu. The information necessary to print a graphics screen from High Resolution Graphics Screen One is now in the computer's memory. Follow the instructions for Option 4, Install Printer Format Currently in Memory.

Once the printer format information has been placed in memory, you must write the information to the Program Disk using Option 4. Once the printer format information has been stored on disk, the Print Plan Option (9) from the program's Menu for Architectural Design will automatically function properly.

4 — INSTALL PRINTER FORMAT CURRENTLY IN MEMORY

From the Printer Installation Menu, select Option 4, Install Printer Format Currently in Memory, and insert the Program Disk in Drive 1. The printer format information will be stored on the program disk. If you use a different printer at a later date, you should run the printer format installation program again.

1 — EDIT/MAKE A PRINTER FORMAT

If your printer is not one of the printers listed above, you may need to create a printer format especially for your printer. Before you do this, however, try each of the five printer formats supplied here to see if one will work for your printer. Follow directions for Options 2 and 4 with each printer format before you attempt to create your own.

Creating a printer format is no easy task. It may take a bit of experimentation before you get all of the necessary codes in the correct sequence. It's a good idea to load one of the printer format files supplied in Option 2 and examine its contents with this menu option. To examine the values already present in the file,

simply press the <RETURN> key to accept the current values.

This option is divided into four main parts. The first part contains the codes necessary to get the printer ready to accept data. The second part turns on the graphics mode and prepares the printer for graphics. The third part turns off the graphics mode and returns the printer to its normal printing mode. The fourth part asks questions about the printer's configuration.

The codes you need for the printer commands can be found in the manual supplied with your printer. These commands, such as <ESC> <A>, are represented by various numbers called ASCII codes.

SECTION ONE This part of Option 1 allows you to enter the ASCII codes that remain in effect throughout the printing of the graphics screen. They usually consist of the codes necessary to alter the line spacing to seven or eight lines per line feed. If your printer prints graphics with seven printing pins located inside the printing head mechanism, you should alter the vertical spacing of the printer's line feed to seven. This prevents the printer from placing a gap between consecutive lines of graphics printed on the paper.

An example is the Epson printer, which requires a vertical line spacing of seven. The commands necessary to activate the graphics mode are

ESC A 7

The ASCII code representation for these commands is

27
65
7

In some cases the eighth bit of every command sent to the printer must be turned on. If this is the case, you must add 128 to the ASCII codes of the command:

155
193
7

After you have finished entering the commands for this first section, enter 255 to terminate the data entry mode.

Some printer cards require only this first section of Option 1 to produce graphics printouts. These printer cards have programs built in to their memories to produce these printouts. Such a feature is often called a "grappler." If your printer card has a grappler, enter Y for Yes to the question following the first section. If your printer card does not have a grappler, enter N for No and proceed to the second section.

SECTION TWO In the second section you enter the codes that must be sent to the printer every time a line of graphics is printed. This may be the number of bytes per line, or the number of dots per line. Some printers have several modes that allow you to produce

several different sizes of the same picture. If your printer offers condensed print, it will probably also print several sizes of a picture. The commands necessary here affect the horizontal spacing of the printout. Enter the commands in the same manner as in Section One and terminate the data entry mode by entering 255.

SECTION THREE This section of commands turns off the graphics mode of the printer. These are the ASCII codes that return the printer to normal or standard print and turn the vertical line spacing back to the normal line spacing for text output. Some printers have a single command for this function; others may require multiple commands. If your printer has a reset command or a printer startup command, this is the single command you would enter here.

SECTION FOUR The program now asks you several questions about your printer. The first concerns the number of pins your printer uses to print graphics. Most dot matrix printers have eight vertical pins in the print-head mechanism. Some printers use only seven of these pins to print graphics. Your printer manual should contain a section on bit-mapped graphics that will give you this information. If it does not, try experimenting with seven or eight pins.

The next question asks you whether or not bit zero of each byte of graphics data gets printed on the top or the bottom line.

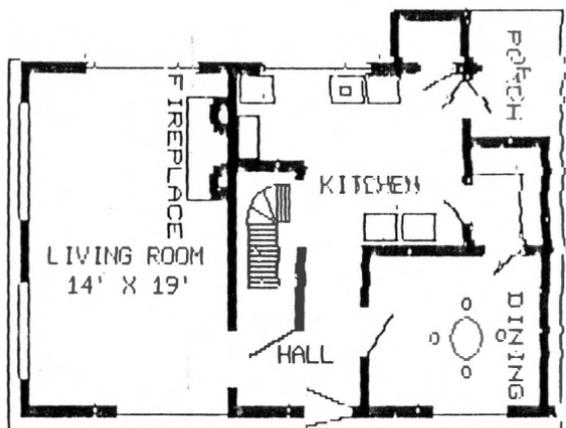
The third and fourth questions ask you if you want to double the scale of the picture printed.

If you choose to double the horizontal scale be sure the printer is set up to print 560 dots per line rather than the usual 280.

The next question asks you which slot your printer is connected to. This is the slot where the printer controller card is inserted. If you are unsure about this, remove the top of your Apple and follow the printer cable into the computer. The vertical board the cable is connected to is the printer control card. The slots of the Apple computer are numbered 1 to 7 from left to right. Most printer control cards are located in Slot #1.

You have created a printer control format. Before you install this format on the Program Disk, it's a good idea to save it on a file just in case it doesn't quite work. You can use Option 1 again to review or edit the set of commands you have given in each section. To save a printer control format, select Option 3 and enter a valid file name. Now proceed to Option 4 to install the printer control format on the Program Disk.

Note: the Apple IIc automatically inserts a carriage return after each 80 characters printed. When you are printing graphics screens, this causes a "squiggle" in the lines of your picture, as in the printout below.



To fix this, reconfigure your serial ports. Refer to your Apple IIc System Utilities manual, page 31, under Line Width. Choose Option 1, "Do not insert carriage return."

The same "squiggle" problem may occur in graphics printouts from interface cards for other Apple models. Refer to the manuals for those printer interface cards.

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Shape Commands

Letter key = Shapes A to Z

Return = 1-126

Letter key = rotate flickering
shape

Esc = erase flickering shape

Button #0/Space = Place shape

Screen Commands

> = Erase a paddle-defense area

: = Draw/x Draw switch

+ = feet inch/decimal switch

= = metric screen switch

* = full/mix screen switch

@ = area of Δ / \square surrounding
last diagonal movement
of cursor

. = Begin line

- = Draw line from last dot

· = Draw a dotted line
as above

⋈ = Draw a dash line as above

! = " Center line as above

/ = line color (or length)

1-9 = Line thickness for > or,

3 = Thick line

< = Thick line w/ \square corners

CTRL F = Straighten last line