by Gregg Hillmar | third edition
written for version 2011

Light Plot Deconstructed
for Vectorworks Spotlight

About the Author | Gregg Hillmar is a scenic and lighting designer based in Richmond, VA. Mr. Hillmar's work has been seen at hundreds of Theatres, Dance and Opera Companies across the country. Non-theatre work includes designing galleries, lighting exhibits, and designing convention booths and stages. Mr. Hillmar has written about Vectorworks in many industry publications and has provided training for professional theatres, dance companies, businesses, educational institutions and individuals. He has done training seminars at USITT, LDI, SETC, and other industry organizations and conventions. Mr. Hillmar is an Associate Professor of Theatre Design and Technology at Randolph-Macon College in Ashland, VA. He is a member of United Scenic Artists Local 829, the union for professional theatrical designers and artists, and can be visited on the web at www.hillmardesign.com.

Vectorworks Spotlight is a powerful addition to the Vectorworks family of design software. This tutorial manual is based on Gregg Hillmar's successful Vectorworks Spotlight demonstration and training courses. Mr. Hillmar provides a short, accessible, and easy to follow look at Vectorworks Spotlight as an addition to the Vectorworks Manuals.

NVM.LPD-2011 v1.0 | Cover imagery: Virginia Shakespeare Festival's 2008 production of *"Taming of the Shrew"*; courtesy of Gregg Hillmar.

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Vectorworks Spotlight Tutorial
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For more Vectorworks training information or to purchase more copies of this book, please visit www.Vectorworks.net/training, or call us at (410) 290-5114.

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Introduction

Hi, I'm Gregg Hillmar. I've been working for many years as a scenic and lighting designer for theatre and other entertainment industries. In addition to a vigorous freelance career, I have taught at a variety of graduate and undergraduate institutions before happily settling at Randolph-Macon College in Ashland, Virginia. I've been using Nemetschek's software package Vectorworks, and before that MiniCAD, since about 1992, and "full-time" since 1994 or so—based on the last hand-drafted show in my portfolio. I first experimented with drawing light plots and scenery in MacPaint, having bought my first Macintosh computer in late 1984. Subsequently I tried MacDraft, Canvas, and GenericCADD among others, but it was not until discovering MiniCAD that I felt giving up the pencil was in order.

Fast-forward several years, and I'm now asked to demonstrate Vectorworks, and particularly Vectorworks Spotlight by Nemetschek Vectorworks, Inc., the publishers of the Vectorworks software, at their booth at industry conventions including LDI, USITT, and SETC. I have also worked as a Vectorworks trainer and consultant for private corporations and public training seminars sponsored by theatrical organizations and educational institutions. I've done several Spotlight training sessions for the Nemetschek Vectorworks's sales and tech support teams, including taking them into theatres to witness first hand the spaces, materials, and tools of our industry.

This book will take a quick look at how I use Vectorworks software to draft lighting plots. My way is not the only way. It's not right or wrong. It's just the way my practice and workflow have evolved over the 15 years I have been using Vectorworks. I'm reminded of Stanley McCandless's famous (at least to lighting designers) book *"A Method of Lighting the Stage"* (Fourth Edition, 1958), which to many designers turned into *the* method of lighting the stage. There is no *the* implied here. My approach is not the end-all and be-all, but it works for me. This book reflects my approach. Feel free to adapt my ideas to your own approach.

My point of view is that theatrical drafting is about *communication*. It is somewhat free of the structures used in strictly architectural practice, but the end results are the same. We need to communicate clearly and concisely with those we work with. They need to be able to understand in an instant what they are looking at and be able to use that information. Choices we make in line weight, dashes, hatches, symbols, and all of the other graphics are the language in which we communicate. Page layout and choices of what is on each plate in a set of drawings puts that language into context. The composition of the page refines that context. We can turn out really beautiful drawings, full of style and grace, but unless the shop can read them and instantly understand what is being communicated, the drawings are just so much paper waiting to be recycled.

This book will certainly reflect my drafting style, as taught to me primarily by William H. Lockey (University of Richmond), and John Rothgeb and David Nancarrow (University of Texas Austin). My style has been further refined by many years of drafting scenery and lighting for theatre, and working with myriad theatre artists who also draft. From them, I've borrowed what I like, and vowed to never do what I don't like. Note that this is *not* a book about drafting style. There are better books out there for that; some are CAD-specific, but the ones I like are not.

It is also worth noting that the output this book is geared towards is a 2D plot and paperwork. While we will delve into the 3D world of Vectorworks as it assists us in creating the plot, that plot, printed, is our final goal. And a plot, printed, is a 2D representation.

3D computer modeling, and lighting models, is perhaps the subject of another book.

Finally, there is not any discussion of design choices here; you're on your own for those. We need to remember that the output that this book is geared toward (the plot) is *not* art, but communication. Art happens in the theatre. Perhaps that is best described, even all these years later, by Robert Edmond Jones in "Light and Shadow in the Theatre," Chapter 6 of *"The Dramatic Imagination"* (1941):

We handle our spotlights and gelatines and dimmers [and CAD software] in the theatre with the same delight and the same sense of mastery with which we drive a high-powered automobile or pilot an aeroplane. But at rare moments, in the long quiet hours of light-rehearsals, a strange thing happens. We are overcome by a realization of the livingness of light. As we gradually bring a scene out of the shadows, sending long rays slanting across a column, touching an outline with color, animating the scene moment by moment until it seems to breathe, our work becomes an incantation. We feel the presence of elemental energies (Jones, p. 113).

While we are studying to perfect ourselves in the use of the intricate mechanism of stage lighting we are learning to transcend it. Slowly, slowly, we begin to see lighting in the theatre, not only as an exciting craft but as an art, at once visionary and exact, subtle, powerful, infinitely difficult to learn. We begin to see that a drama is not an engine, running at full speed from the overture to the final curtain, but a living organism. And we see light as a part of that livingness (Jones, p. 114).

And, "Lucidity, penetration, awareness, discovery, inwardness, wonder… These are the qualities we should try to achieve in our lighting." (Jones, p. 121).

And perhaps best, "Does this mean that we are to carry images of poetry and vision and high passion in our minds while we are shouting out orders to electricians on ladders in light-rehearsals? Yes. This is what it means." (Jones, p. 128).

Vectorworks

According to the Nemetschek Vectorworks website:

Nemetschek Vectorworks, Inc., is a wholly owned subsidiary of European software giant Nemetschek AG. A global leader in design technologies, Nemetschek Vectorworks has been developing computer-aided design (CAD) software for the architecture, engineering, and construction, entertainment, landscape design, and manufacturing fields since 1985. The Vectorworks® product line is one of the world's best-selling cross-platform CAD applications and has won many industry awards. The Nemetschek Vectorworks family of software includes Vectorworks Designer, Architect, Landmark, Spotlight, Fundamentals, and Renderworks® (www.nemetschek.net/company/history.php, 08/25/2010).

MiniCAD, the predecessor of Vectorworks, was originally written by Richard Diehl, legend has it at his kitchen table, and was first published by Diehl Graphsoft in 1985. Initially a Macintosh-only application, MiniCAD 6 became cross-platform in 1996. MiniCAD 7 updated to Vectorworks 8 in 1999. Nemetschek AG purchased Diehl Graphsoft in 2000 and created Nemetschek North America, Inc. In 2001, Vectorworks added the Spotlight package as an add-on, along with several other "vertical" products. Vectorworks is currently configured as a Fundamentals level with Spotlight, Renderworks, Architect, Landmark, and Machine Design as separate products. The Designer package includes all of the add-ons.

Nemetschek North America changed its name in 2010 to Nemetschek Vectorworks, Inc.. "We are best known for our flagship Vectorworks® product line, and incorporating this brand into our company name better reflects our focus," said CEO Sean Flaherty. "Our top three markets are Japan, USA, and Germany, and a company name that is product-based rather than geography-based indicates our mission more clearly while also clarifying our position within the Nemetschek group" (www.nemetschek.net/news/pressreleases/2010/nemetschek-north-america-changes-name-to-nemetschek-vectorworks.php, 08/25/2010).

Early in its history, Diehl Graphsoft identified theatrical design as a viable market and is the only major publisher of CAD software that I am aware of who intentially hired developers with theatre backgrounds to support theatrical applications of that software. In the mid-1990s, Diehl Graphsoft hired Frank Brault to develop some theatre-specific macros and symbols. Frank Brault came from a professional theatre and dance background with lighting experience. The Lighting Toolkit package grew out of his initial work. Sometime thereafter, Kevin Moore and Kevin Linzey were hired, first as student interns and then full-time. Kevin Moore took over Spotlight development. Both Kevins had theatre backgrounds, and both have worked for me on various shows and events. Kevin Moore eventually left Nemetschek to return to event, production, and management work, and Kevin Linzey moved into the lead Spotlight developer role. Kevin Linzey does still occasionally work in theatres while keeping his "day job" with Nemetschek Vectorworks. The people working on, and with, Spotlight know theatre as well as software development. The ongoing commitment to theatre on the corporate level *and* the individual level is a huge advantage for all of us.

As noted earlier, MiniCAD was developed initially for the Macintosh. More than a decade after the first PC release, though, Vectorworks remains a cross-platform program. It works equally well on a PC as it does on a comparable Macintosh. There are no real programming differences. Files created on one can be opened and used on the other and traded back and forth with no issues. There are some minor differences, mainly visual, created by how the two operating systems work. As an example, in the PC world, palettes can be floating or "docked" into the program's window. On the Macintosh, the drawing window and all the palettes are always separate floating windows. I should mention that all screenshots used here are from the Macintosh version.

What's New

The first edition of *"Light Plot Deconstructed"* came out during the Vectorworks 2009 "model year." I stated then that the concepts and general usage of the book were not specific to one version of Vectorworks. I would still say that with some modification for changes in workspaces and tools, this book should work fine with many versions of Vectorworks. This book is more about approach and is not a step-by-step tutorial.

That said, I have upgraded this edition to reflect Vectorworks 2011. There were many important improvements in Vectorworks 2010, and Vectorworks 2011 promises to be an absolutely must-have upgrade. Vectorworks Spotlight has benefited from all of those improvements. Vectorworks 2010 introduced some new tools; prime among them are some very nice video projection tools initially developed by C. Andrew Dunning of Landru Design, improved and incorporated into Spotlight. Improvements in event planning and staging tools will have obvious implications for those designing conventions or other events. Some interface improvements in Vectorworks 2010 make drawing the plot easier. For example, when a lighting instrument is made active in the Resource Manager, the Instrument Insertion tool is selected automatically. In past versions, the Symbol Insertion tool was selected automatically and we had to remember to select the Instrument Insertion tool. Likewise, in Vectorworks 2011, select an accessory and the Accessory Insertion tool becomes the active tool. Vectorworks 2011 has added several improvements to tools used every day in Spotlight. The Ganging Tool and the Auto-Position Sensing have received some attention and have new preferences to better customize the information on the plot. Focus Points have better options and enhanced graphics. Other improvements enhance 3D functionality; for example, 3D lighting fixtures now rotate to point to the assigned Focus Point while the 2D representation stays as set by the user.

For lighting designers, the Automatic Data Exchange between Vectorworks Spotlight and Lightwright 5 has proven to be a great feature. There is a new section later in the book devoted to working with Lightwright. Lightwright 5 was rewritten from the ground up, and is a huge improvement in handling information in our field.

Never mentioned in the first edition of *"Light Plot Deconstructed"* is that Vectorworks 2009 experienced a similar transformation. The core code that controls the 3D aspects of Vectorworks was completely replaced. One of the concepts I stress is the outcome that this book is devoted to is a 2D drawing— the plot, printed. Starting with Vectorworks 2009 and continuing through Vectorworks 2011, the way that 2D information is handled is changing. While most of the changes will have little impact on "the plot," the overall way Vectorworks now deals with 2D information is worth exploring.

The simplest way to explain this is that 2D geometry and information can now interact with 3D space. In earlier versions of Vectorworks, I could draw a rectangle using the 2D rectangle tool. I could then change to any 3D view, front, front-left isometric, rear, whatever, and the rectangle "hovered" in front of the view— parallel, if you will, to the screen.

Starting in Vectorworks 2010, I can define different ways to deal with those 2D objects. 2D objects can be either in the “Screen Plane” in that they will always be “parallel” to the screen regardless of the view “behind” them, or they can be in the “Layer Plane,” which means that they are always in the X,Y plane with no Z presence at all. Layer Plane objects display in 3D views as if they are laying “on the floor.” This is very handy for seeing 2D floorplans while in 3D views, as with the 2D floorplan seen in a Left Isometric view in Figure 1. 2D objects drawn in the Top/Plan View will default to Layer Plane, while 2D objects drawn in any other standard view will default to Screen Plane. If a Working Plane is defined, 2D objects can be drawn on that working plane, and will respond as if on a layer plane, meaning that 2D details can be drawn over 3D objects, and will keep their relationship to that object in any 3D view. This is great for elevations and detail drawings.

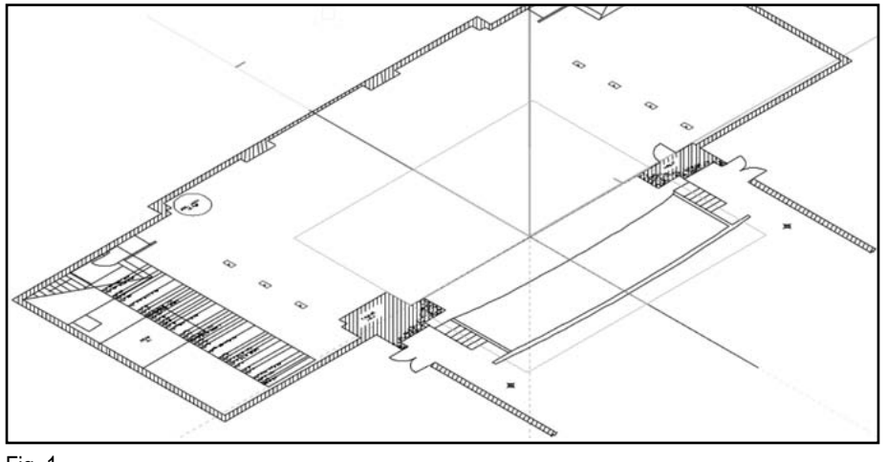

Fig. 1

In previous versions of Vectorworks, text blocks were not very text-like. Entering a text block to edit removed it from any connection to the rest of the drawing, and such things as line breaks changed from editing mode to what was seen on the drawing. In Vectorworks 2010, text, like other 2D objects, could exist as a screen plane object or as a layer plane object. In a 3D view, however, the text showed only as the bounding rectangle. Vectorworks 2011 improves text editing and gives text blocks a real place in the 3D world. Text set as a layer plane object is now still text in the 3D world. Vectorworks 2011 now includes support for text styles that will remember text attributes and can apply them to any block of text.

Dimensions have some new properties, especially when dealing with 2D and some 3D objects. In Vectorworks 2009, a 2D rectangle could be dimensioned with the Dimension tool, and the dimensions would be “associated.” If the size of the rectangle was changed, the dimensions would also change. Vectorworks 2010 carried this relationship a step further. I can double-click on the dimension itself, type in the new dimension, and both the dimension *and* the rectangle will change to match the new dimension.

Walls and other 3D objects have seen some improvements as well, and snaps in 3D views are much improved. The Unified View command makes working in 3D space much more intuitive, and the ease of Working Plane alignment really helps drawing in 3D space. Indeed, Vectorworks 2011 has added “push and pull” methodology to working with 3D surfaces.

Of special interest is that Vectorworks 2011 has new rendering technology. Rendering is now based on the very powerful Cinema 4D rendering engine from MAXON. It is completely multi-threaded, and the new technology is much faster, easier to use, and provides better quality than the previous rendering engine.

Since almost everything referenced in this book deals with the plot as a 2D document, and most tools are used in Top/Plan view (the “2D” view) when creating the plot, many of these changes are not immediately noticeable. However, the way lighting designers use the 3D aspects available in Vectorworks is beginning to change as the ease of working in 3D improves. Scenic designers of course have much more use for many of the 3D aspects, and as we receive files from them, we’ll be able to put some of the 3D technology to use.

Visit the Nemetschek Vectorworks web site for a complete overview of the changes in Vectorworks 2010 and 2011.

In this book, illustrations, menu commands, and tool references have been updated to reflect Vectorworks 2011. Most of the tools and techniques I use are available in Spotlight and Renderworks added to the Fundamentals, though my copy of the software is a full Designer version. I also use several third-party scripts and macros, which are now listed at the back of this book. Use of these third party add-ons will be mentioned in this book, but most techniques discussed here will be available to all Vectorworks Spotlight users with Renderworks.

In Ye Olde Days…

In “Ye Olde Days,” using a drafting machine, a parallel, or a T-square, we carefully squared a piece of vellum onto our drafting boards, taped it into place, and grabbing our lead holder or mechanical drafting pencil, began drafting…

Ah, but what and where?

While designing scenery, most often I’d start by squaring a bluelined print of the theatre floorplan to the drafting board, then lay a piece of vellum or, if still thinking, a piece of butterpaper over that. Butterpaper was much cheaper than vellum and so easily thrown away. Based on quick thumbnail sketches, rough sketchy workings of the floorplan would emerge. Another piece of butterpaper taped down; copy up the good stuff and keep thinking on paper. Then, slap the vellum on top of the stack on the drafting board and trace up the architecture and the rough set. Add the title block, and it’s done.

Not quite. The floorplan is pulled off the board, another piece of vellum squared down, and elevations are started. Hmmm. Does that door look better if it is off center in the wall? Does that reflect the character of the inhabitants better? Sure, let’s change it! So finish roughing in the elevations on that one page. Pull it up, and lay the floorplan back on the drafting board. Pull out the electric eraser, and move the door on the floorplan. Pull up the floorplan; lay down another sheet, and work those elevations. Hmmm. What can the audience see through that window? What can audience members in the balcony see? Pull up the elevation, lay down a blueline of the Center Line section of the theatre and a piece of vellum, and rough in a section of the set. If we move that wall 6" further downstage, the masking can work with the existing linesets. Finish roughing it in, pull the section off the board, put the floorplan back down, dig out the eraser, and move the wall on the floorplan. Pull that up, tape the elevation back down, and…

Well, only sometimes was the process quite so convoluted, but that was the thought process.

And deciding what each plate looks like was important. Plates of drafting are methods of communication, and composition of the plates was important in that communication. Leading the eye to the important information is part of the job of the composition. Which elevations would fit on which plate with which other elevation? Or with which detail? And where on the plate was best? Balance the tendency to read from top left with the reality of not flipping a whole set of drawings, stapled, all the way open. Top right becomes the first seen, though the placement of the title block may influence that. So, just like in any “artistic” composition, I use other elements to control emphasis and visual flow. Decisions about what would be on each plate needed to be made at the beginning of the process, and any changes in those decisions meant tedious redrafting of the entire plate(s).

Drawing a light plot was a little less complicated. I usually started with the floorplan of the set and the architecture of the theatre. In a multi-set show, the floorplans might be on different sheets, so again I would have multiple layers of vellum on the drafting board. The section drawing and a composite front elevation of the set were developed and kept close at hand to check the angles at which light was hitting the performer.

Lay down a fresh sheet of vellum, and draw indications of the areas to be lit. Using a drafting machine, squares are faster to draw than circles or ovals, so I marked my areas as squares. Of course, I know that light doesn't naturally fall into nice neat squares, nor do I usually want it to, but it is a convenient visual representation. Next I might draw the existing lighting positions. Then add a fresh sheet of vellum and start drawing instrumentation. Use the drafting machine to mark the horizontal angle from the area to the position, check the section to make sure the vertical angle works. Mathematically calculate the distance of the throw. Check the size of the beam for the preferred instrument type at that throw, then get out the lighting template and draw the outline of the desired instrument. Add notes about color, channel, purpose, and so on. Move to the next area. Wash. Rinse. Repeat. But wait! In order to get the right angles, these two instruments must hang in the same place. One has to move. And in order to keep instruments 18" apart—a long-standing industry "standard"—that means four other instruments next to this one need to move also. Dig out the electric eraser, erase, and redraw. Wash. Rinse. Repeat.

Once the rough plot is finished, I'd lay down yet another sheet of vellum and trace up all of the information that I wanted to appear on the plot. One of the major ways I control composition and visual importance in drafting is use of line weight. Line weight is achieved primarily through the darkness and the thickness of a line. In Ye Olde Days, this was achieved in several ways.

Graphite lead was used in "lead holders." Lead came in different hardnesses. Softer leads put more graphite on the page and were generally considered "darker" or "heavier" than harder leads. Harder leads were more suited to thinner lines, while softer leads worked better for thicker lines.

Sharpness of the lead created different line thicknesses. The lead was "twirled" in a lead sharpener to a razor sharp point, or a slightly blunted end. The resulting lead dust was removed by sticking the now-sharp lead into a "swab" of cotton, or of Styrofoam, or—my personal favorite, the end of a roll of toilet paper. The sequence of drawing a few lines, sharpening, and dusting created its own rhythm and Zen-like concentration. Sharpening stops were perfect times to contemplate the look of the object being drawn and make decisions about the next few lines.

Control of the lead holder was also critical. The lead had to be perpendicular to the page at all times or the point would be "wedged," and the resulting line would not be a consistent width. Drafting involved a subtle twist of the lead holder as lines were drawn to even the wear on the point.

I had one professor tell me that another part of the line weight equation was the indention the pencil made in the paper. So control of the *depth* of the line was another method of line weight control when bluelining was the method of distribution. It took careful control to push the lead deep enough into the vellum to make a good trough, but not deep enough to rip through the vellum.

Mechanical drafting pencils were also available. Similar to mechanical pencils available everywhere, the thickness of the line was controlled by the thickness of the lead. Standards available included 0.03-mm, 0.05-mm, 0.07-mm, 0.09-mm, and so on, and were placed in pencils sized to match. Such pencils made for drafting tended to be much more precise and well crafted than those available at the local store and had price tags to match. Leads of all sizes were available in different hardnesses, again; harder leads worked better for thinner lines and softer leads for thicker lines. Combinations, though, gave the drafter an almost infinite variety. Twirling the pencil was still necessary to keep an even line.

I often used ink drafting pens in addition to pencils. With ink, line weight was mainly a function of the thickness of the line. Pens came in different thicknesses just like mechanical pencils mentioned earlier, and the ink laid out from the pen—after some practice—reflected that thickness.

One advantage to using pens was that ink did not erase easily. Therefore, all the preliminary work could be done with graphite, not paying any attention to lineweight or crisp stops to lines. Once the object was "finished," it could be inked neatly with proper line weight. The rough-in of graphite could be erased, leaving only the ink. On the other hand, one disadvantage to using pens was that ink did not erase easily…

The lighting instruments and their hanging positions should have prime focus, so the set and so forth might be drawn in lighter-weight lines. Architecture is copied up, then the lights themselves redrawn with the relevant information. For example, while roughing in the plot, having the purpose of each light noted is very convenient when shuffling lights around. Having the purpose of each light on the final plot is not useful information, so that would not get traced up. On the rough plot, channel designations might be quickly noted, while on the final plot I always put them inside a circle connected to each light. Lighting positions that on the rough plot are drawn as a continuous line are "broken" by instruments drawn on that position in the final version. Notes about trim heights are added, having been decided by working out sightlines and angles from the section drawing. Depending on the size of the drafting board, that may mean dislodging the plot-in-process to tape down and draw the section. Light plot finished, add the title block, and off it goes for distribution.

Distribution of drawings was mainly done via "bluelining" an original drawing done on vellum. The original was fed through a diazo blueline machine with a piece of light-sensitive paper under it. The ultraviolet lamp in the machine would cast the shadow of the original on the blueline paper. The original exited the machine, while the paper then revolved through an ammonia-based developing process. Anything dark on the original came through as blue on the finished print. Subtle variations and shades translated; but not always quite as subtly as the original pencil.

If I needed ten copies of the drawings, I had to manually run the original with a piece of blueline paper through the blueline machine ten times. Recently I did a scenic design where the set of drawings had 24 sheets. In Ye Olde Days, that meant 240 trips to the blueline machine.

Luckily, most light plots are not so many sheets. The plot, printed, is ready to be distributed to the Master Electrician and anyone else who needs it.

But wait: there is still the paperwork to finish. Information about each and every light is noted —by hand In Ye Olde Days on blank forms drawn and reproduced for just such purposes. Photocopy those for all involved *if* there was a photocopy machine available. Hope that there are no changes "on the fly," which necessitate changing multiple sheets of paper—by hand—for multiple people. John McKernon, author of Lightwright, tells the story of watching all of his tour mates go off to the beach while he remained in the hotel updating the plot and paperwork…again.

It all was a rather time- and thought-consuming process. And it was not always fun.

I was in graduate school in the mid-80s when a touring dance company came through the Performing Arts Center. I remember vividly a discussion with the Production Manager, who was traveling with one of the very first PCs. He could save and update his paperwork as quickly as he could type, and then print out new versions right then and there. The implications were obvious, and it was not long after that designers began working on preparing and presenting visual information on computers as well. Fast-forward many years, and we now do what is basically the same process as outlined earlier, but with much less trauma and stress, not to mention much less drafting tape.

Still, the way I approach drafting a light plot in Vectorworks is very similar to the way we used to approach drafting by hand. Design Layers in Vectorworks are our sheets of vellum; we are always drawing *on* a virtual sheet of vellum. At the end of the process, we will "copy up" what we want to print to a Sheet Layer, placing elements there for visual communication. Line weight still gives us as much information as always, so it too gets "reproduced" in our digital approach. Communication is still the main point of drafting a light plot.

Vectorworks Basics

Opening a New Document

I'll assume you have knowledge of your particular computer and operating system (OS). I'll also assume you have installed Vectorworks on your computer and have a working knowledge of "the basics." I would suggest working through the free "*Getting Started Guide"* to learn those basics.

Most of the references made in this book are Macintosh-based since that is what I use, but "click on the selection tool," or "in the Modify menu" should be the same regardless. I'll note that there is a Macintosh/Windows dictionary in the Vectorworks manual that lists exact key and menu commands cross-referenced for each platform.

When Vectorworks is started, I have my preferences set so that no document is opened. Selecting **New** from the **File** menu opens a dialog box asking what to do. **Create blank document** does just that, creating a "virgin" untitled document. Under **Use document template**, choices can be made from files provided with Vectorworks. In addition, a default template can be created and saved to be used at any time. The advantage of this is that users can set up their own default to look like anything they want; select scale, paper size, default layer and class assignments, default symbols, textures, and Vectorworks and document preferences, and then save that setup as the default. Every time that document is opened, that setup will be used. Over the next few pages, I'll talk about my preferred setup, and then I'll talk about saving the default file.

When I open a new file, I see the layout shown in Figure 2. This will be the starting point to creating my default file.

Workspaces

Workspaces define how the menu commands, tools, and palettes are organized and define the "shortcut keys;" keystrokes that evoke particular tools or commands. Vectorworks ships with a series of predefined workspaces that can be selected from the **Tools>Workspaces** menu. Exactly which ones are available will depend on which modules of Vectorworks are installed. I'll assume that the Spotlight module is installed, so that is the workspace to start with. The image in Figure 2 shows the Spotlight workspace.

Vectorworks does allow the tools, commands, and menus to be customized to best suit individual working habits and to add additional tools or commands to the workspace. I, for example, move often from my laptop by itself to my laptop with an additional monitor and therefore have two main workspaces customized and saved. Right now, using Vectorworks 2011, one of my workspaces is called g11_1scr, and the other is called g11_2scr. Both have custom menus, custom tool palettes, and saved scripts—the difference being where the palettes are located on the screen. When using two screens, I keep important palettes open and visible on the right monitor while the drawing area and basic tools fill the space on the left

monitor. That layout is saved as g11_2scr. On the road when using just the laptop, I switch to g11_1scr, where the palettes are collapsed up on top of the Drawing Window bar. On the Macintosh, palettes cannot dock into the drawing window as in the PC world; each remains a separate floating window. But they can be collapsed and positioned as out of the way as possible.

Palettes

Tools used in Vectorworks are organized in palettes. The basic 2D tools are in the Basic palette. Other tools are arranged under tabs in the Tool Set palette. By clicking on the tab, tools in that category are displayed.

All of the tool palettes are “tear-offs” in that clicking on the tab bar of the palette, one can drag the tools anywhere on the screen so that they are not just in the Tool Set palette. Moving a Tool palette closer to where the actual work is being done saves a lot of mousing back and forth. Using shortcut keys will also save mousing—a keystroke can select a tool or execute a menu command. Learning the shortcut keys is a very good way to save time and energy while drafting. The key combination can be seen in the pop-up tool tips.

On the bottom of palettes is a pull-down menu that lets me specify whether tools are displayed as colored icons, by name, or by both icon and name.

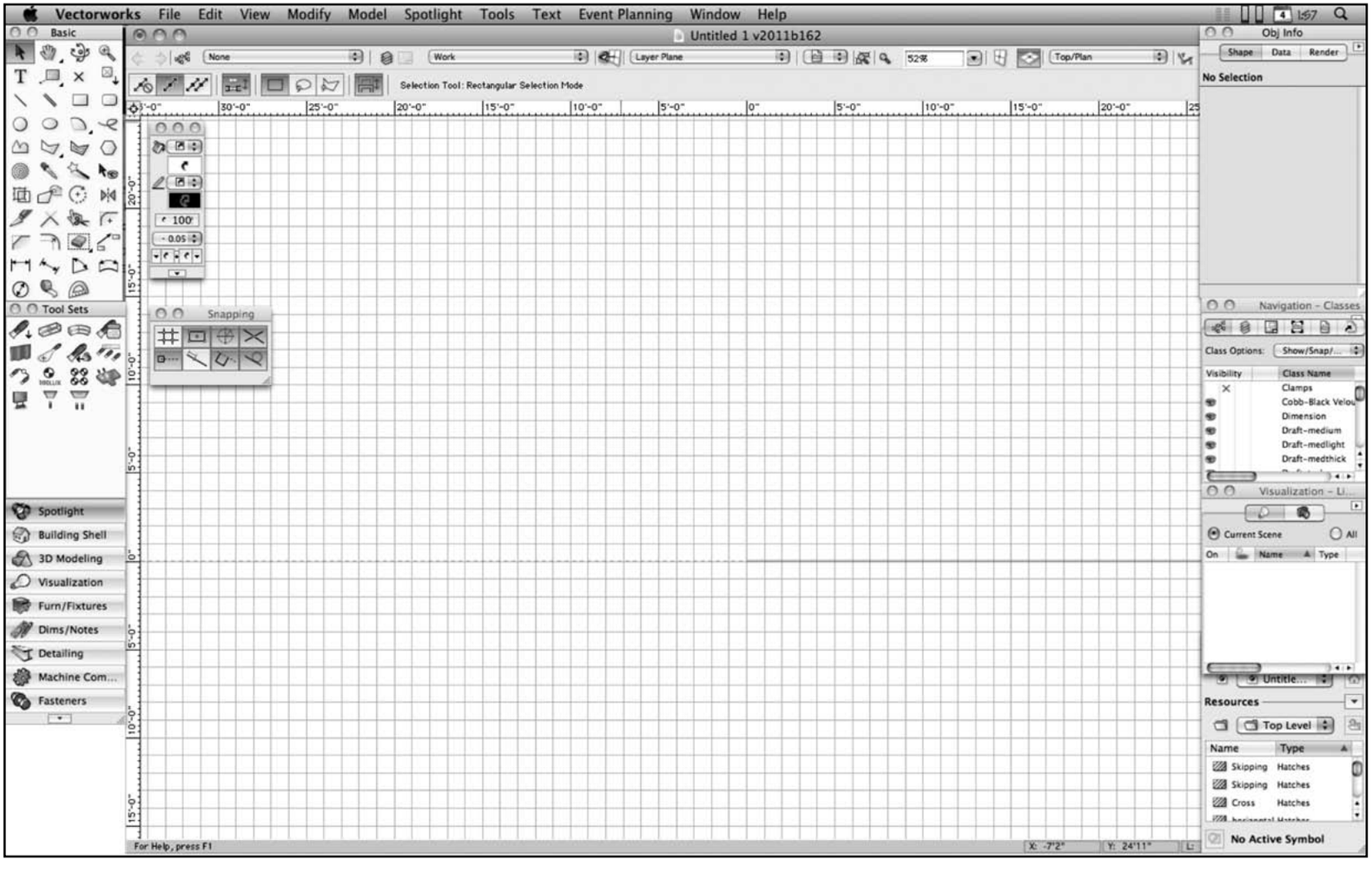

Fig. 2

Palettes can be made visible or invisible via key commands or via the Palettes menu. On the Macintosh, they can be collapsed by double-clicking in the title bar. In Windows, the palettes can be free-floating windows, docked into the main Vectorworks window, or hidden using the Auto Hide feature.

Palettes can be manually reorganized to fit in any workflow. In addition to the Basic and Tool Set palettes, always on the left of my main screen, the palettes I use most often are the Navigation palette, the Resource Browser, the Attributes palette, and the Object Info palette (referred to as the OIP). I keep them open always, collapsed at the top of the screen when working with one screen, or open on the second screen to the right of the Drawing Window when using two screens. Vectorworks will remember the last location of all palettes and put them there when reopened. That is the first step in defining how to best work with Vectorworks. The second step is to customize the palettes and menus.

Customizing Workspaces

The custom scripts and tools that I use regularly have been added to an individualized tool palette called “greggs” and to a menu called “g11_2scr” (on my two-screen workspace) named so I know at a glance what workspace is active. In addition, I’ve gathered menu commands relating to Spotlight into one menu. Prior to 2011, Vectorworks shipped with these menu commands organized by function in many other menus. I’ve also moved the new Event Planning menu commands under my Spotlight menu as well.

In Vectorworks 2011, the Spotlight Workspace already has all of the Spotlight commands in a separate menu. I’ll still want to move some other menu commands around, as well as add some custom scripts.

Scripts can be written by anybody and included in menus or as custom tools. Vectorworks includes a scripting language that can accomplish many things. Not a coding guru? Many repetitive commands can be “memorized” and saved as a simple script to be used again and again. The **Custom Modification…** and **Custom Selection Tools** include this option in the dialog box itself.

There are also freeware and shareware commands and tools readily available from other users. To find many of them, start with the community page at the Nemetschek web site, www.nemetschek.net/community/index.php. There are several theatre lighting specific scripts and tools available there and elsewhere. AutoPlot, for example, is just such a set of scripts. It is available via www.autoplotvw.com. I never leave home without it. I’ve mentioned the video screen tool introduced in Vectorworks Spotlight 2010. It originated as a third-party tool set, and is still available for earlier versions of Vectorworks. The same author has several other tools, including a great curtain tool and a new LED array tool. The link to Landru Design is www.landrudesign.com. While at the community page, also visit the Mailing Lists link, where there is a link to the Vectorworks Theatre Mailing List. Here you will find discussion of Vectorworks as used in theatre. Many questions are asked and answered here, including scripting theatre-specific macros. A member of that list working in a nontraditional space recently asked about numbering instruments in a clockwise fashion. Sam Jones, author of the AutoPlot macros, had a script written and posted within a day or so of the request. There is a wealth of information here!

I’ve included information about several third-party tools, symbols, and scripts at the end of this book. I use them all; some on every plot, and some as needed depending on the complexity of the project.

Once acquired or made and saved, any of these scripts and tools can be added to a custom workspace. I’ll also rearrange the existing commands and tools to best suit my workflow. To do so in Vectorworks, I select **Tool>Workspaces>Workspace Editor.**

Initially, I’ll work on a copy of the existing workspace, which as suggested before, should be the Spotlight workspace. I’ll choose to **Edit a copy of the current workspace**.

I’ll give the workspace a new name. My workspace name tells me which version of Vectorworks I made it for, and how many screens.

The Workspace Editor opens, first showing the menus editor tab. To create a new menu, drag the **New Menu** from the left of the box to the list of menus on the right. Select the new menu and rename it as desired. In Figure 3, I’ve named a new menu gah1scr. Then I can click and drag available commands from the left panel to the right under a new menu or an existing menu. These do include existing Vectorworks commands as well as third-party commands, and the Workspace Editor now shows all of the new menu commands added in the last three versions of Vectorworks.

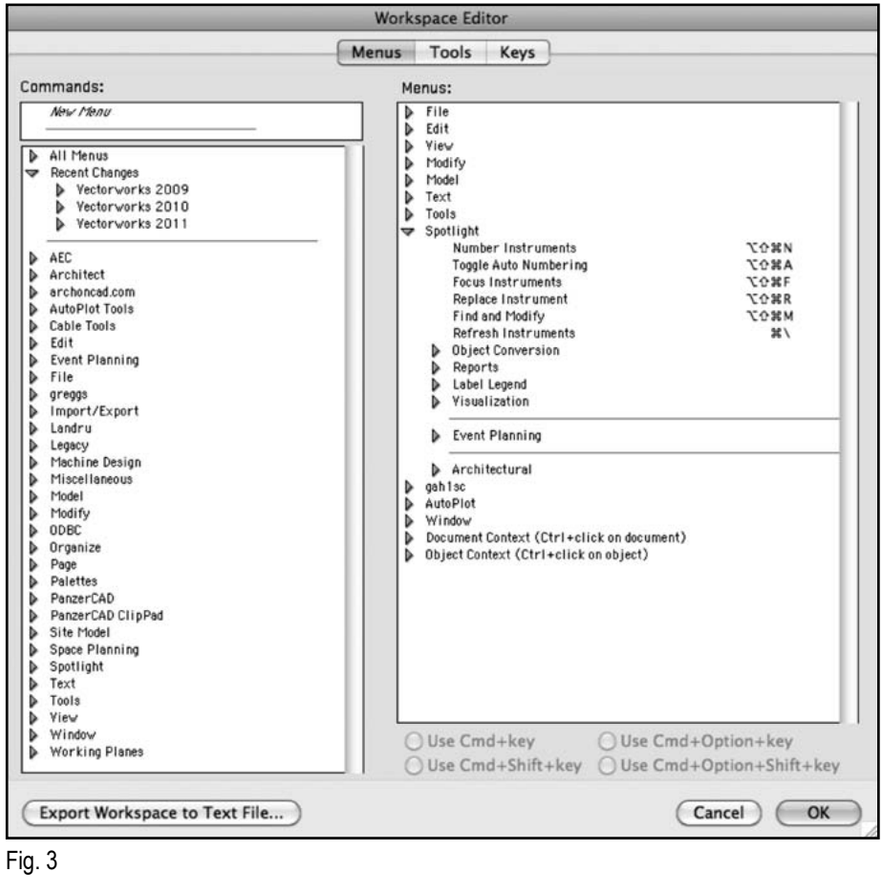

Fig. 3