10 STEP-BY-STEP

In the previous chapters, a number of principles, strategies, and techniques were introduced to help you draw well on the computer. In this chapter, you will see step-by-step examples that utilize these skills to draw specific examples.

First, examples of symbols for functional diagrams are introduced. These examples will acquaint you with some very basic drawing skills. Afterwards, examples of master plan graphics are illustrated. These master plan graphics build upon the fundamental drawing skills introduced with the functional diagram graphics; but, they also demonstrate more sophisticated techniques specific to Adobe Photoshop—including filters and tools for scaling and distorting your drawings.

The examples are not intended to be comprehensive. They are, however, a good sampling of drawings that touch upon all of the techniques discussed previously in the book. If you complete all of the examples, you will almost certainly acquire the confidence and expertise to draw well on the computer.

Most examples should be able to stand alone. That is, you should be able to skip around. You do not need to complete them sequentially. Hopefully, you will be able to find an example that you can use immediately in your own drawings.
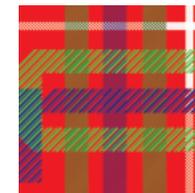
Do not presume that each example is the optimal way to draw that symbol. Often, I will use alternative ways to accomplish the same goal in the hopes that you may discover a new way to draw well. Do not be surprised if you can draw the same symbols more quickly or efficiently another way. Do, however, be open to exploring new ways to draw. Though it may not be the most effective way to draw that specific symbol, that same technique may have very practical applications to something else you may want to draw.

All of the drawings were done within Adobe Photoshop. Almost all of the drawings were done on a canvas with 200 pixels per inch (ppi). Recall that the resolution affects the choices you make regarding your line hierarchy. If you intend to draw using a different resolution, then you should consider changing some of the values used in the drawings proportionally to your new resolution. For example, if you prefer to draw at a resolution of 100 ppi, then you may want to halve the paintbrush diameters. Also, some filters within Photoshop require you to draw in RGB mode. Recognize that if you choose to draw in another mode (e.g., CMYK, indexed), then you may not be able to accomplish all the tasks in the following examples.

I hope you find the following examples helpful.

DRAWING PLAN GRAPHICS ON THE COMPUTER

PRINCIPLES
STRATEGIES
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STEP-BY-STEP
EXAMPLES

"Most computer drawings do not possess the same clarity and artistry of hand-drawn graphics. With this book, that will change…"
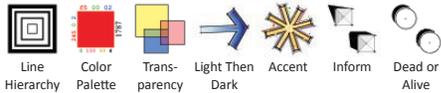
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Master Plan Graphics | Palm Tree

This example illustrates how to draw a symbol for a palm tree. The techniques used in this example include the following:

| Line Hierarchy | Color Palette | Trans-parency | Light Then Dark | Accent | Inform | Dead or Alive |

This drawing was originally drawn on a canvas with a resolution of 200 pixels per inch. Afterwards, it was scaled down to fit within these pages.

Step 1: Draw the symbol limits.

Step 1: Draw the symbol limits.

- Draw a circle to help visualize the space you want to draw within.
  - Create a new layer and name it *Brush 200*.
  - Choose a paintbrush for the Brush Tool and draw a circle by simply touching the brush to the canvas.
   - `Master Diameter = 200 px`
    - `Hardness = 100%`
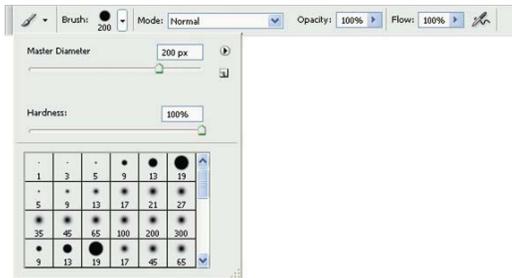
- Reduce the opacity of your fill so that you can see your work in the next steps.
  - `Opacity = 25%`
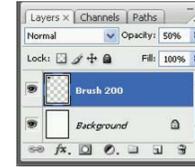
Step 2: Draw thick lines.

- Draw thick lines radiating from the center of the symbol.
  - Create a new layer and name it *Brush 5*.
  - Choose a paintbrush for the Brush Tool and draw brush strokes radiating from the center to the edges of the symbol.
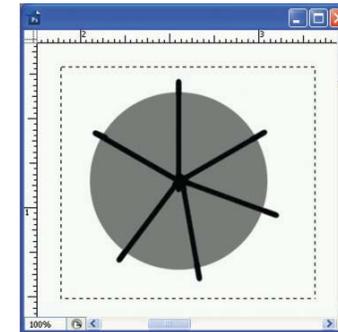   - `Master Diameter = 5 px`
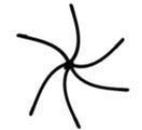   - `Hardness = 100%`
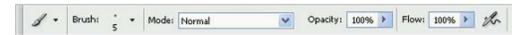
Step 2: Draw thick lines.

Step 3: Distort the line work.

- Select the area you intend to distort.
  - Click on the layer Brush 5 to choose it.
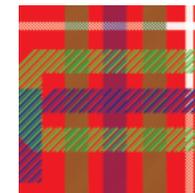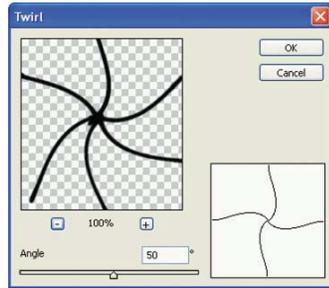 - With the Selection Tool, select a square area that is large enough to capture the radiating brush strokes.

Step 3: Distort the line work.

- Distort the line work with a filter.
  - **Filter > Distort > Twirl...**
    - `Angle = 50 degrees`
  - Click on the [OK] button.
  - Rename the layer *Brush 5 Twirl 50d*.

**Step 4:** Add thick lines.

Step 4: Add thick lines.

- Add thick lines to the stems of the fronds.
  - Create a new layer and name it *Brush 3*.
  - Choose a paintbrush for the Brush Tool and draw perpendicular lines to the larger, thicker lines.
    - `Master Diameter = 3 px`
    - `Hardness = 100%`

Step 5: Add thin lines.

Step 5: Add thin lines.

- Add thin lines to the stems of the fronds.
  - Create a new layer and name it *Brush 1*.
  - Choose a paintbrush for the Brush Tool and draw perpendicular lines to the larger, thicker lines.
    - `Master Diameter = 1 px`
    - `Hardness = 100%`
      - You should consider the source of light (the sun) when deciding whether to draw thick or thin lines on either side of the fronds.

Step 6: Distort the line work.

### Step 6: Distort the line work.

- Consolidate the layers of your line work.
  - Click on the layer *Brush 5 Twirl 50d* to choose it.
  - While holding down the [Ctrl] key, click the layers *Brush 3* and *Brush 1* to choose them, too.
  - Click on the right mouse button and select "Merge Layers…" from the pop-up dialog box.
  - Rename the merged layer *Fronds*.
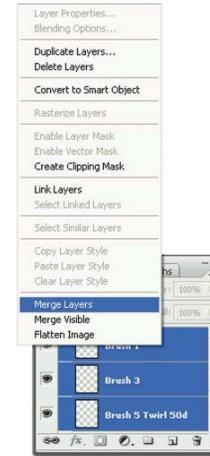
- Distort the line work with a filter.
  - Click on the layer Fronds to choose it.
  - **Filter > Distort > Ripple**
    - `Amount = 100%`
    - `Size = Medium`
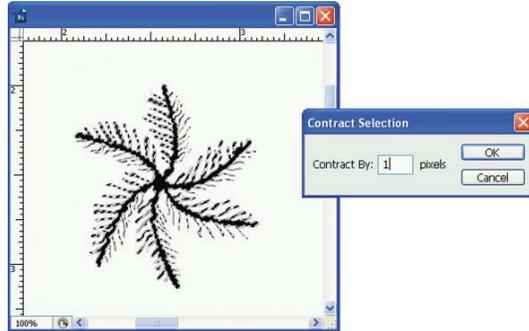 - Click on the [OK] button.
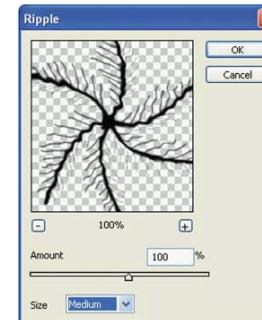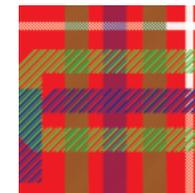
Step 7: Add more fronds.

Step 7: Add more fronds.

- Select the current fronds.
  - Click on the layer Fronds to choose it.
  - **Select > All**
  - With the Move Tool, hit the [up arrow] on your keyboard, then hit the [down arrow].
  - **Select > Modify > Contract...**
    - Contract By = 1 px
  - Click on the [OK] button.

- Create more fronds.
  - Create a new layer and name it *Red Fronds*.
  - Change the foreground color to red (#ED5100).
  - **Edit > Fill...**
 - Click the [OK] button.
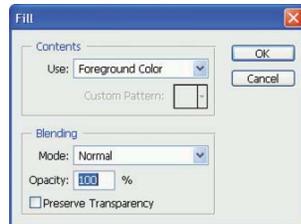
- Rotate the new fronds.
  - **Edit > Transform > Rotate**
    - Angle = 30 degrees
 - Click the [OK] button.
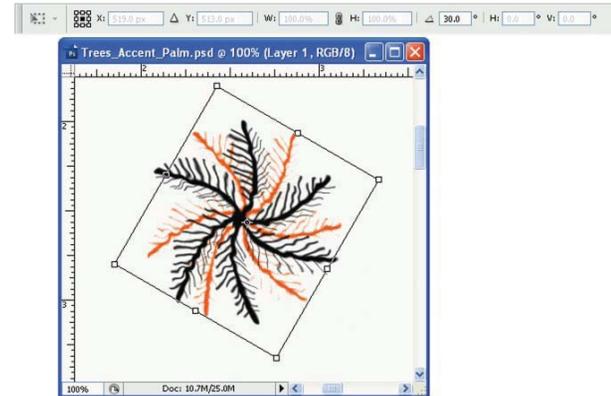
Step 8: Paint the symbol.

Basically, to color the palm you stack somewhat transparent layers of colors on top of one another. You will start with colorful undertones and then add the more dominant greens and olives on top of them. The greens and olives will be less transparent than the foundational colors.

- Paint foundation colors on the drawing.
  - Create a new layer and name it *Brush 25 50%*.
    - This layer name will remind you of the size paintbrush you used, and the layer opacity you will ultimately set.
  - Choose a paintbrush for the Brush Tool and begin painting colors loosely on your drawing.
    - Master Diameter = 25 px
    - Hardness = 100%
  - Repeat the steps above using various accent colors. Be certain to create a new layer for each color. By separating the colors on unique layers, they will eventually blend together where they overlap.
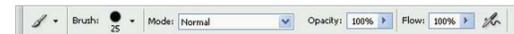
- Blend the colors drawn previously.
  - Reduce the opacity of your fill so that you can see your work in the next steps.
   - Opacity = 50%
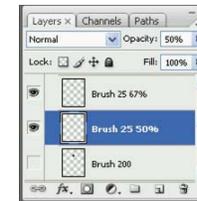
Step 8: Paint the symbol.

- Paint base colors of green and olive on the drawing.
  - Create a new layer and name it *Brush 25 67%*.
  - Change the foreground color to olive green (#95AB00).
  - Choose a paintbrush for the Brush Tool and paint loosely over the symbol.
  - Repeat the steps above, replacing the foreground color with dark olive (#686B00).
- Blend the colors drawn previously.
  - Reduce the opacity of your fill so that you can see your work in the next steps.
    - Opacity = 67%
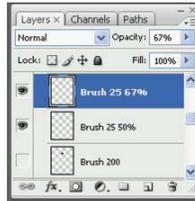
**Step 9:** Add a shadow.

Step 9: Add a shadow.

- Merge the layers that you painted on.
  - While holding down the [Ctrl] key, click on every layer you that you painted on in the previous steps.
  - Click on the right mouse button and select "Merge Layers..." from the pop-up dialog box.
  - Rename the merged layer *Paint*.

- Distort the merged layer with a filter.
  - **Filter > Distort > Ripple**
    - Amount = 100%
    - Size = Large
  - Click the [OK] button.
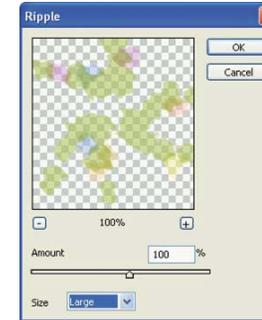
- Create a shadow from your line work and painting.
  - Click on the layer *Fronds* to choose it.
  - While holding down the [Ctrl] key, click on the layer *Paint* to choose it, too.
  - Drag the selected layers to the "Create a new layer" icon.
  - Your copied layers will now be selected. Click on the right mouse button and select "Merge Layers..." from the pop-up dialog box.
  - Rename the layer *Shadow*.
- Trim the shadow.
  - Click on the layer *Fronds* to choose it.
  - **Select > All**
  - With the Move Tool, hit the [up arrow] on your keyboard, then the [down arrow].
  - Click on the layer *Shadow* to choose it.
 - Hit the [Delete] key to erase the selection from the layer.
  - Click on the layer *Paint* to choose it.
  - **Select > All**
  - With the Move Tool, hit the [up arrow] on your keyboard, then the [down arrow].
  - Click on the layer *Shadow* to choose it.
  - Hit the [Delete] key to erase the selection from the layer.

Step 10: Add accents.
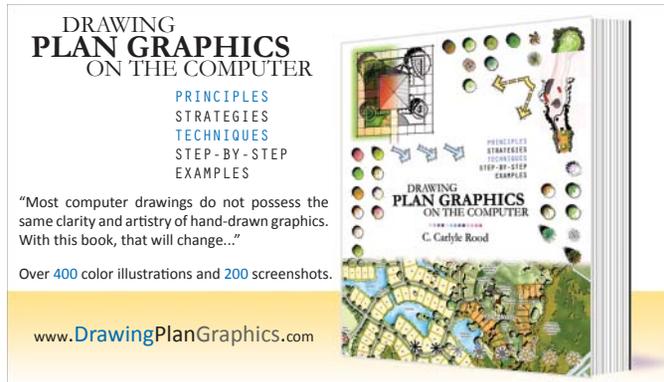
Step 10: Add accents.

- Add accents to the symbol.
  - Create a new layer and name it *Accents*.
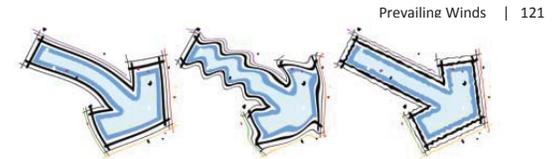 - Using various brush sizes and colors, add accent dots and strokes to the symbol.
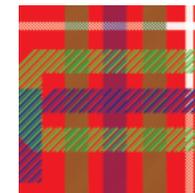
Functional Diagrams | Prevailing Winds

This step-by-step example illustrates how to draw arrow symbols for prevailing winds within a functional diagram. The techniques used in this example include the following:
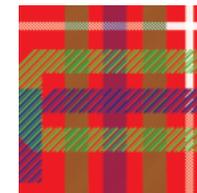
| Line Hierarchy | Straighten Up | Best Stroke | Erase | Merge | Color Palette | Light Then Dark | Accent |

This drawing was originally drawn on a canvas with a resolution of 200 pixels per inch. Afterwards, it was scaled down to fit within these pages.

Step 1: Draw the general form of the symbol.
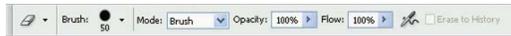
- Draw the arrow line.
    - Create a new layer and name it *Arrow Line*.
    - Choose a paintbrush for the Brush Tool and draw the arrow line.
        - `Master Diameter = 50 px`
        - `Hardness = 100%`
            - Hold down the [Shift] key between mouse clicks for straight lines.

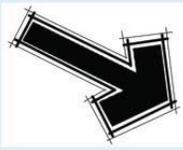**Step 1:** Draw the general form of the symbol.
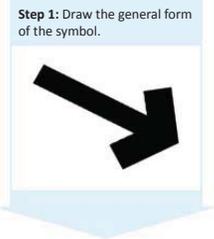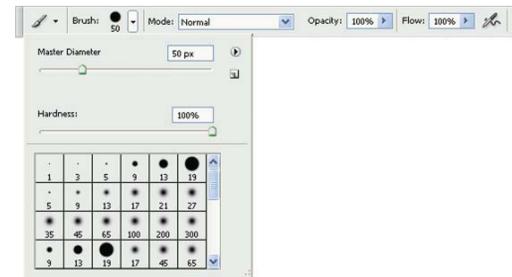
- Draw the arrowhead.
    - Create a new layer and name it *Arrowhead*.
    - Choose a thicker paintbrush for the Brush Tool and draw the arrowhead.
        - `Master Diameter = 75 px`
        - `Hardness = 100%`

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- Sharpen the arrow line and arrowhead.
  - Click on the layer *Arrow Line* to choose it.
  - Choose a brush for the Eraser Tool and erase the edges of the arrow line.
    - `Master Diameter = 50 px`
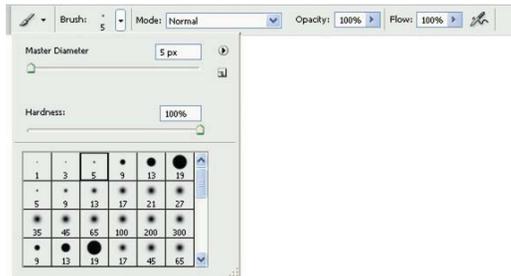   - `Hardness = 100%`
  - Repeat for the arrowhead.

- Change the color of the symbol.
  - Click on the layer *Arrow* to choose it.
  - **Select > All**
  - With the Move Tool, hit the [up arrow] on your keyboard, then hit the [down arrow].
  - Change the foreground color to light blue (#DBF5FF).
  - **Edit > Fill**
  - Click the [OK] button.

**Step 2:** Outline the symbol.

Step 2: Outline the symbol.

- Draw an outline around the symbol.
  - Create a new layer and name it *Outline.*
  - Choose a paintbrush for the Brush Tool and draw a bold outline around the symbol.
    - `Master Diameter = 5 px`
    - `Hardness = 100%`

- Draw another outline around the symbol.
  - Choose a thinner paintbrush for the Brush Tool and draw a thin outline around the symbol.
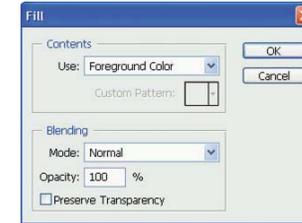   - `Master Diameter = 3 px`
    - `Hardness = 100%`

Step 3: Change the color of the symbol.
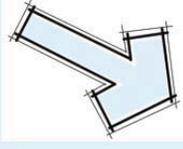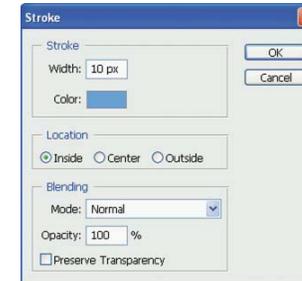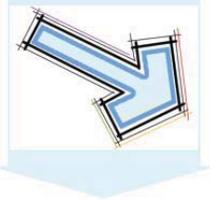
Step 3: Change the color of the symbol.

- Merge the arrow line and arrowhead.
  - Click on the layer *Arrow Line* to choose it.
  - While holding down the [Ctrl] key, click on the layer *Arrowhead* to choose it too.
  - Click on the right mouse button and select "Merge Layers" from the pop-up dialog box.
  - Rename the merged layer *Arrow*.

Step 4: Enhance the color and add accents.

Step 4: Enhance the color and add accents.

- Add accent color to the symbol.
  - Click on the layer *Arrow* to choose it.
  - **Select > All**
  - With the Move Tool, hit the [up arrow] on your keyboard, then hit the [down arrow].
  - Change the foreground color to light blue (#5C96FF).
  - **Edit > Stroke**
    - `Width = 10 px`
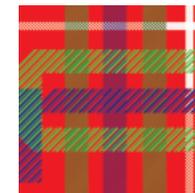   - `Location = Inside`
  - Click the [OK] button.

- Add accents to the outline.
  - Click on the layer *Outline* to choose it.
  - Using various brush sizes and colors, add accent brush strokes around the outline.
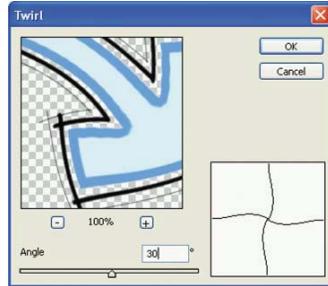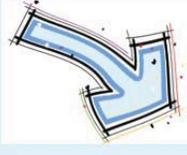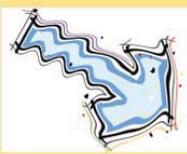
Step 5: Distort the symbol.

Step 5: Distort the symbol.

- Merge the arrow and its outline.
  - Click on the layer *Arrow* to choose it.
  - While holding down the [Ctrl] key, click on the layer *Outline* to choose it too.
  - Click on the right mouse button and select "Merge Layers" from the pop-up dialog box.
  - Rename the merged layer *Arrow and Outline*.
- Distort the symbol using a filter.
  - Click on the layer *Arrow and Outline* to choose it.
  - **Filter > Distort > Twirl...**
   - Angle = 30 degrees
  - Click the [OK] button.

Step 6: Add accents to the symbol.

Step 6: Add accents to the symbol.

- Add accents dots to the symbol.
  - Create a new layer and name it *Accents*.
  - Using various brush sizes and colors, add accent brush strokes to they symbol.

Step 5(b): Distort the symbol.
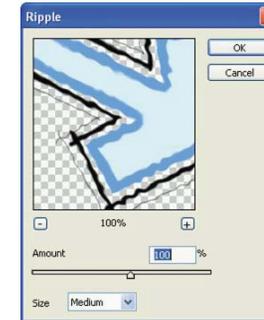
Step 5(b): Distort the symbol.

Rather than distorting the symbol with the Twirl filter, you can use the ZigZag filter to create a more dramatic distortion.

- Distort the symbol using a filter.
  - Click on the layer *Arrow and Outline* to choose it.
  - **Filter > Distort > ZigZag...**
    - Amount = 10
    - Ridges = 5
    - Style = Around Center
  - Click the [OK] button.
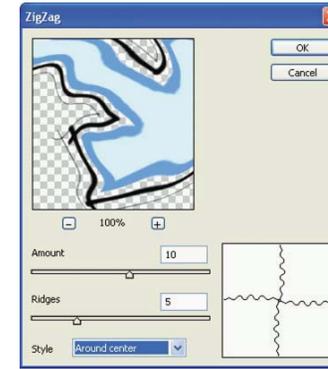
Step 5(c): Distort the symbol.

The Ripple filter is another alternative to using the Twirl or ZigZag filters.

- Distort the symbol using a filter.
  - Click on the layer *Arrow and Outline* to choose it.
  - **Filter > Distort > Ripple...**
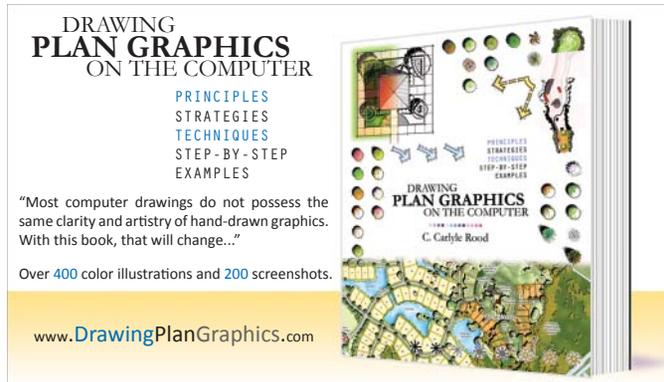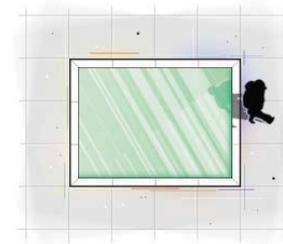   - Amount = 100%
    - Size = Medium
  - Click the [OK] button.
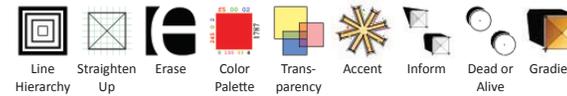
Step 5(c): Distort the symbol.

This is an excerpt from
Drawing Plan Graphics on the Computer.
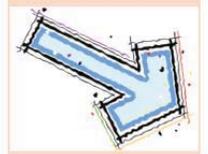
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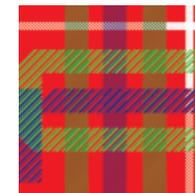
Master Plan Graphics | Reflecting Pool

In this exercise you will draw a simple, elegant reflecting pool. The intent is to create a water surface that mimics glass. The techniques used in this example include the following:

Line Hierarchy	Straighten Up	Erase	Color Palette	Trans-parency	Accent	Inform	Dead or Alive	Gradient

This drawing was originally drawn on a canvas with a resolution of 200 pixels per inch. Afterwards, it was scaled down to fit within these pages.

Step 1: Draw the basic form of the pool.

- Draw the basic shape of the pool.
    - Create a new layer and name it *Pool*.
    - Set the foreground color to black (#000000).
    - With the Rectangular Marquee Tool, select a triangle within the canvas.
    - **Edit > Fill**
    - Click the [OK] button.
- Reduce the opacity of your fill so that you can see your work in the next steps.
   - `Opacity = 25%`
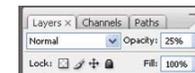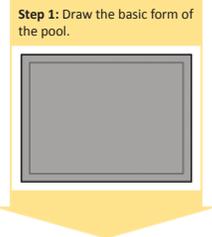
- Draw a thick outline around the pool.
    - Click on the layer *Pool* to choose it.
    - **Select > All**
    - With the Move Tool, hit the [up arrow] on your keyboard, then hit the [down arrow].
    - Create a new layer and name it *Outline*.
    - **Edit > Stroke**
        - `Width = 5 px`
        - `Location = Inside`
    - Click the [OK] button.

Step 1: Draw the basic form of the pool.

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- Draw a thinner outline around the pool.
  - **Select > Modify > Contract...**
    - Contract By = 20 pixels
  - Click the [OK] button.
  - **Edit > Stroke...**
    - Width = 2 px
    - Location = Inside
  - Click the [OK] button.

Step 2: Paint the water.
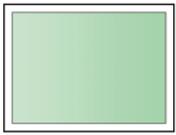
Step 2: Paint the water.

- Paint the water with a gradient.
  - Turn off the layer *Pool* by clicking on the [eye] icon on the layer tab so that it disappears and the layer is no longer visible.
  - Click on the layer *Outline* to choose it.
  - With the Magic Wand Tool, select the inside of the pool by clicking in the center.
    - Tolerance = 1
    - Contiguous = checked
  - Change the foreground color to cyan (#91FFBA).
  - Change the background color to white (#FFFFFF).
  - Create a new layer and name it *Gradient Fill*.
    - Foreground to Background
    - Linear Gradient
    - Mode = Normal
  - Click the mouse button (and hold it down) near the right side of the selection, drag the cursor to the left side of the selection, and then release the mouse button.
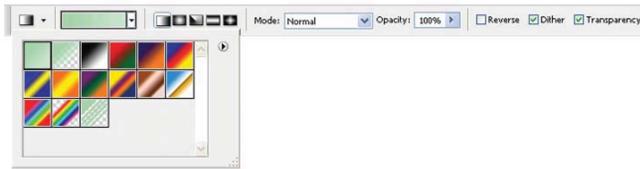
Step 3: Draw reflections on the water surface.

Step 3: Draw reflections on the water surface.

- Choose the surface of the water and rotate it.
  - Click on the layer *Gradient Fill* to choose it.
  - **Edit > Transform > Rotate**
    - Angle = -60 degrees
  - Hit the [Enter] key to commit the rotation.

- Draw linear reflections on the water surface by painting on the gradient fill.
  - **Select > All**
  - With the Move Tool, hit the [up arrow] on your keyboard, then hit the [down arrow].
  - Create a new layer and name it *Stripes*.
  - Change the foreground color to white (#FFFFFF).
  - Choose sharp paintbrushes of various sizes with the Brush Tool and paint stripes within the selection.
    - Master Diameter = varies
    - Hardness = 100%

Step 4: Refine the reflections.

- Make the stripes fainter.
  - Click on the layer *Gradient Fill* to choose it.
  - Reduce the layer Opacity = 50%.

**Step 4:** Refine the reflections.

- Rotate the reflections and gradient fill back.
  - Click on the layer *Gradient Fill* to choose it.
  - **Edit > Transform > Rotate**
    - Angle = 60 degrees
  - Hit the [Enter] key to commit the rotation.
  - Repeat the above steps for the layer *Stripes*.

### Step 5: Add more reflections.

- Add more reflections by copying the original ones and trimming to fit.
  - Click on the layer *Stripes* to choose it.
  - Drag the layer to the "Create a new layer" icon.
  - Click on the layer *Stripes copy* to choose it.
  - **Edit > Transform > Rotate**
    - Angle = 90 degrees
  - Click the [OK] button.
  - With the Move Tool, shift the rotated stripes to your preference.
  - Click on the layer *Gradient Fill* to choose it.
  - With the Move Tool, hit the [up arrow] on your keyboard, then hit the [down arrow].
  - **Select > Inverse**
  - Click on the layer *Stripes copy* to choose it.
 - Hit the [Delete] key to erase the stripes that are outside the pool.

Step 5: Add more reflections.

Step 6: Add accents and details.

- Add accents and details to the drawing.
  - Create a new layer and name it Accents.
  - Using various brush sizes and colors, add accents and details to the drawing.
  - Consider pasting people and site amenities like chairs to give the drawing scale.
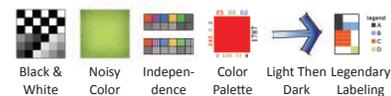
Step 6: Add accents and details.

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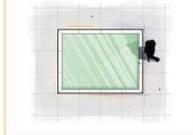
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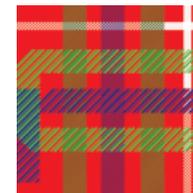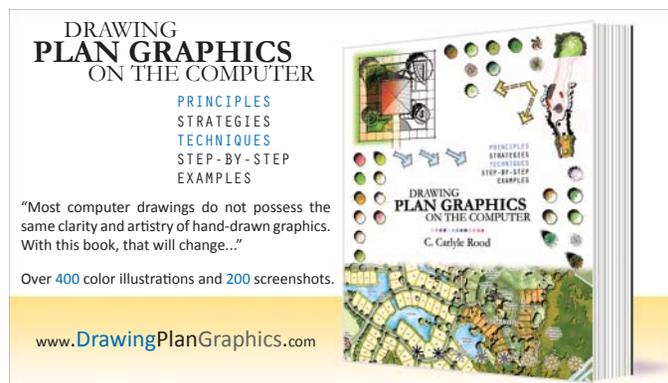
Master Plan Graphics | Turf

In this exercise you will draw some hatches that you might use to represent turf or grass. The techniques used in this example include the following:


| Black & White | Noisy Color | Independence | Color Palette | Light Then Dark | Legendary Labeling |

This drawing was originally drawn on a canvas with a resolution of 200 pixels per inch. Afterwards, it was scaled down to fit within these pages.

**Step 1: Paint the area for the turf.**

- Select the area to paint, as you did in the previous examples.
    - Using the Rectangular Marquee Tool, select the area to paint using the guidelines.
- Paint a light green background within your selection.
    - Create a new layer and name it *Turf*.
    - Change the foreground color to light green (#E0FFB5).
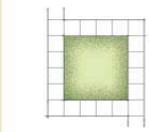   - **Edit > Fill**
    - Click the [OK] button.
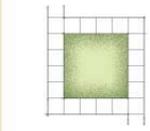
Step 1: Paint the area for the turf.
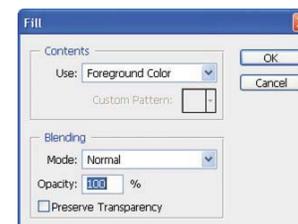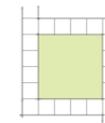
This is an excerpt from
Drawing Plan Graphics on the Computer.

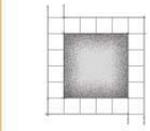www.DrawingPlanGraphics.com
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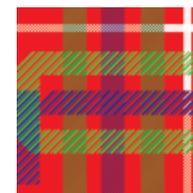
Step 2: Shade the turf.

Step 2: Shade the turf.

- Shade the turf by applying a filter.
  - **Filter > Brush Strokes > Spatter...**
    - Spray Radius = 25
    - Smoothness = 1
  - Click the [OK] button.

Spatter	
Spray Radius	25
Smoothness	1

Step 3: Refine the texture.

Step 3: Refine the texture.

- Refine the texture of the turf by applying a filter.
  - **Filter > Noise > Add Noise...**
    - Amount = 5%
    - Distribution = Gaussian
    - Monochromatic = checked
  - Click the [OK] button.

Add Noise

100%

Amount: 5 %

Distribution
- Uniform
- Gaussian

☑ Monochromatic
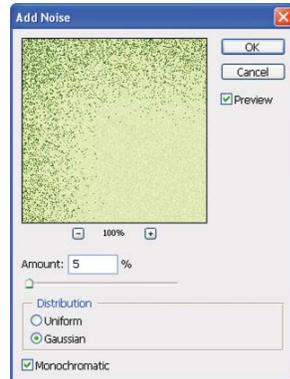
Step 4: Alternative refinement.

Step 4: Alternative refinement.

- If you prefer not to use color, then you can remove it.
  - Click on the layer *Turf* to choose it.
  - With the Move Tool, hit the [up arrow] on the keyboard, then hit the [down arrow].
  - **Image > Adjustments > Desaturate**

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