

Working with Wireframes



With content from Mark Obermiller

Introduction

Objectives:

1. Explain "What is a wireframe?"
2. Show examples of purchased wireframes.
3. To buy or build a wireframe, how to decide.

Introduction Continued

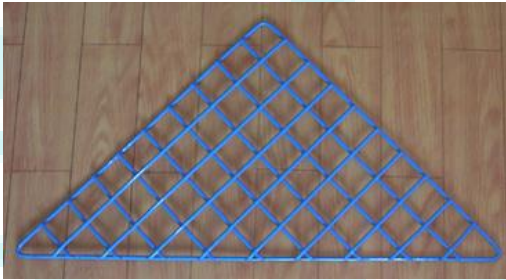
4. What materials to use in the construction of a wireframe.
5. Where to purchase materials?
6. What tools to use to build a wireframe?
7. Welding and cutting, what equipment to use.
8. How to modify a purchased wireframe so to work in a display.

Introduction Continued

9. How to design a homemade wireframe.
10. Constructing a wireframe.
11. Painting a wireframe, what to use.

What Is a Wireframe?

All of these photo's are examples of wireframes.



Let's start with building a **Shopping Cart**.

??? It's wireframe!
Wrong kind huh?

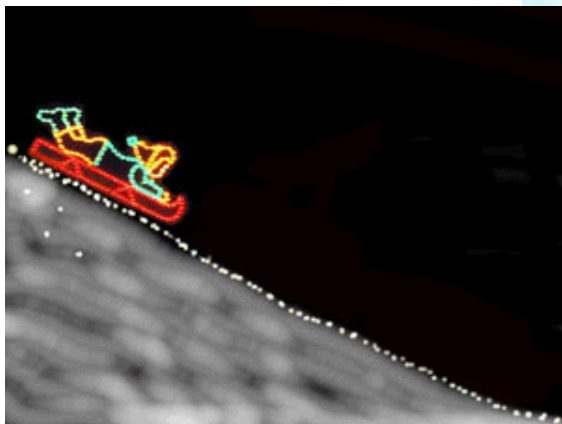
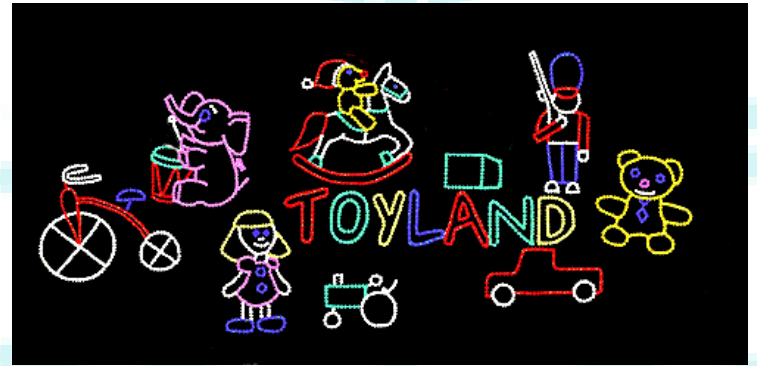
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???? These are not right? Well they all have lights on them! So maybe you want to learn about.....

Christmas Wireframes



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Buy Or Build, How To Decide.

Cost and availability are major factors in deciding to buy or build a wireframe.

The photo on the left is a major wireframe, which is extremely costly!

Another factor to consider is whether you feel the wireframe is beyond your capabilities to build. That being said, given enough time you can build anything!

What about the bat you may ask? If you wanted only a couple of bats, purchasing them would be the most efficient way to go. Anything more, consider making them yourself!



36' x 48' Fantasy of Lights Castle

Entry Arch

CV-1-34002-000

17360 watts 2250 lbs.

\$48,645.00



Bat, \$10.00

Materials

- A. What materials do I need?
- B. Where do I buy the steel?
- C. Where do I buy welding supplies?
- D. Where do I buy the tools needed to build wireframes?

What Materials Do I Use?

The most common steel used is $\frac{1}{4}$ inch hot rolled round bar. You can use $\frac{3}{8}$ inch round as well as $\frac{1}{2}$ round for bracing and ground stakes. The heavier the steel, the higher the cost.

Some people like to use aluminum. Aluminum is much lighter and corrosion resistant, but it is tougher to work with when welding.

Hot rolled is a term used in steel that describes how the steel is processed. Hot rolled means just as it sounds, it is formed into its shape while it is red hot. Hot rolled steel is a mild steel that is easy to bend and is the cheapest steel you can buy.

Avoid using cold rolled steel. Cold rolled is more precise in size and costs much more. Cold rolled is a harder steel that is more rigid and tougher to bend. It is usually coated in oil to keep it from rusting. This oil gets everywhere and must be cleaned before you paint it.

Materials

- A. What materials do I need?
- B. **Where do I buy the steel?**
- C. Where do I buy welding supplies?
- D. Where do I buy the tools needed to build wireframes?

Where Do I Buy Steel?

You can purchase buy steel from a steel fabrication company. Most steel fabrication shops will sell steel to you. You can try a steel supply company who sells to fabrication shops, but most of these companies have a minimum order which will be much more than you will need. Because steel fabrication companies buy large quantities of steel, they can purchase for you exactly what you want. For a nominal fee they will even cut it to your size specifications.

Places like Home Depot or Lowes are another source for steel. You will pay a premium price for the steel, but in a pinch, you have a source.



Materials

- A. What materials do I need?
- B. Where do I buy the steel?
- C. **Where do I buy welding supplies?**
- D. Where do I buy the tools needed to build wireframes?

Where Do I Buy Welding Supplies?

You can check in the phone book yellow pages for stores that sell welding supplies. You can purchase welding rods from Home Depot and welding specific supply companies.

When stick welding wireframes 1/8 inch 6013 welding rod is a popular choice. Which rod to use is determined by personal preference.

When mig welding, a .030 flux cored wire is a good choice. Using flux core means that you will not have to use a shielding gas. Again the wire type and size is of personal preference.



Materials

- A. What materials do I need?
- B. Where do I buy the steel?
- C. Where do I buy welding supplies?
- D. Where do I buy the tools needed to build wireframes?

Where Do I Buy The Tools Needed To Build Wireframes?

Harbor Freight is an excellent source for steel working tools. www.harborfreight.com You can purchase welding equipment, metal forming equipment, welding supplies, and the list goes on and on. Home Depot, Lowes, Menards..... are other places to purchase your tools.



The image shows a navigation bar for Harbor Freight. The top part is a yellow bar with the text "SEARCH View Cart Check Out Home". Below that is a dark blue bar with "HarborFreight.com" in white, "AMERICA'S FAVORITE TOOL STORE" in yellow, and the slogan "Your Source for the Best Quality Tools at the Lowest Prices Guaranteed!" in white. The bottom part is a red bar with various product categories in white text: "Automotive Hand Tools Power Tools Hardware Electrical Outdoor Air Tools Lawn & Garden Household Tarp". There are also two red buttons labeled "Auction" and "Clearance".



Tool List

A. Hand Tools.

B. Welding and Cutting Tools.

Hand Tools



Ball Pein Hammer



Vise



Bolt Cutters



Measuring Tape



Chipping Hammer
(slag hammer)

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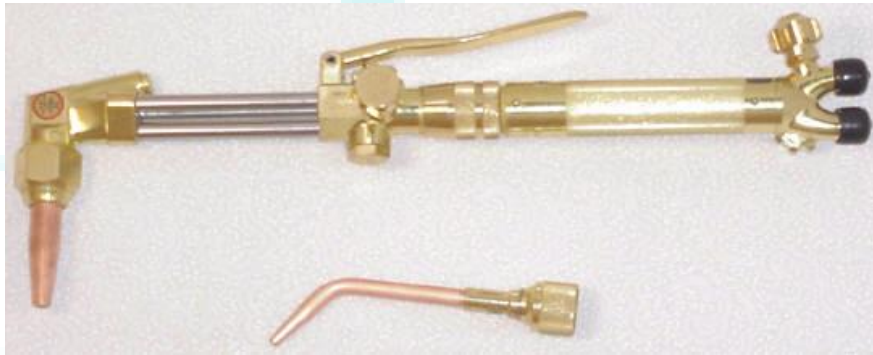
Planetary Gear
Metal Roll

Tool List

A. Hand Tools.

B. Welding and Cutting Tools.

Welding and Cutting Tools



Cutting Torch



Bolt Cutters



Welders
Gloves



Welding Hood



Mig Welder

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Stick Welder

Design

A. How Do I Design a Homemade Wireframe?

B. How Do I Modify a Purchased Wireframe?

How Do I Design a Homemade Wireframe?

- 1. After you have decided what to build, do a rough sketch of your wireframe. Don't forget about any animation you are going to put into your design.**
- 2. Make a final sketch along with approximate dimensions.**
- 3. Draw your project to scale. For example, if your drawing is 10 inches high and your wireframe is to be 40 inches tall X 20 inches wide, the width of your drawing will have 5 inches wide because your wireframe is 4 times larger than your drawing. This is drawing to scale.**
- 4. You will need a drawing projector so you can project your drawing onto a piece of plywood. If you have no projector then you will have to make your parts by scaling your drawing. Mark your 40 inch dimensions on your plywood so you can set the projector to the right height. Now trace your drawing onto the plywood using a bold marker capable of making a $\frac{1}{4}$ inch line.**

Construction of a Homemade Wireframe

5. **Now start bending your steel to match your pattern on the plywood. Continue until you have fabricated all of the parts you are going to need for your wireframe.**
6. **When all of the parts are done it is time to weld it together.**
7. **First tack weld your wireframe together. Now check and make sure every piece is where it should be. Once you are satisfied, it's time to weld it.**
8. **Start welding all of the joints together. Skip around from place to place. This will help to keep your wireframe from warping.**
9. **Depending on the size of the wireframe, you will have to add stiffeners to keep your wireframe from bending out of shape. At this time add your ground pegs or mounts.**

Design

A. How do I design a homemade wireframe?

B. How do I modify a purchased wireframe?

How do I Modify a Purchased Wireframe?

Figure out what changes you want to make to your purchased wireframe and follow the same steps as outlined above. You will have little difficulty modifying your purchased wireframe!

Painting

What Paints Do I Use?

Rustoleum makes an excellent rust inhibiting paint in the spray can for maximum protection against rust. You can use whatever paint is cheapest, especially if the wireframe will be stored inside out of the weather.



Painting

What Paints Do I Use?

Colors? This is up to you, the designer. White is an excellent choice. After ropelight is added it can be colored using Krylon's Stained Glass Color. It will give the frame a colored appearance even in daylight.



Conclusion

- These are the basic methods and techniques for building your wireframes.
- Now that you know the how-to(s), it's time for you to try your hand at it!
- Practice what you have learned, but above all have fun!