



## THE SOUND OF WOODWORKING

WITH

NICK ARTEMAKIS & SCOTT ZELINKA

August 26-30, 2019

### MATERIAL & TOOL LIST

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The following list of tools will be necessary for this workshop.  
If there is something else you would like to bring, please bring it along.

- Tape measure (<=12')
- 12 inch metal ruler
- 6" or 12" combination square
- 4" radius compass
- Pencils, eraser, notebook, silver and black Sharpie markers
- Scotch Blue painter's tape, 1 roll 1" wide; 1 roll 2" wide
- Strapping Tape, 2 rolls 2" wide
- Screwdriver - manual - Phillips #2
- 40 Watt soldering iron
- 1 can Spray Adhesive – Loctite 200 (13.5 oz) **or** 3M Super 77 (16.75 oz)
- Scissors - for cutting ½" foam rubber insulation
- 8 small "C" or "F" clamps (for clamping ¾" thickness)
- ½", ¾" 1" chisels ...if you have
- Camera / phone – helps document the process & details for reference
- Old Master's Gel Polyurethane
  - o Pint of Interior Oil Based / Clear Satin 85108

The Gel Polyurethane is a clear satin finish that provides a soft, hand-rubbed sheen on the speaker cabinet. It enhances the nature beauty of the wood. Should you desire to stain your cabinets, please bring the stain of your choice. Just be aware that stain must have a 24-hour dry time before application of the gel polyurethane.

Safety Equipment: Glasses, ear plugs or ear muffs, dust mask, work apron

You will need to Bring Your Own Wood (**BYOW**). The choice of species is yours; however, **it must be a hardwood** and per MASW requirements:

“REMEMBER THAT MANY WOODS ARE IRRITANTS OR EVEN TOXIC.  
PLEASE BRING ONLY DOMESTIC WOODS WITHOUT SPALT SO THAT EVERYONE  
BREATHES EASIER”

We recommend one of the following:

- Cherry
- Walnut
- Hard Maple
- African, Honduran, or regular Mahogany

No softwoods, such as pine, as it will affect speaker performance.

If you really would like to use some other species of hardwood, please check with Marc Adams for acceptability in his shop.

In addition to the speakers, you will also be making a pair of speaker stands.

### **CUT LIST**

**Speakers:** Species: Your choice of hardwood

8 pcs: 12" wide x 21" long machined to 1" thick (side panels)

1 pc: 7" wide x 15" long machined to 1" thick (top caps - keep as 1 piece)

1 pc: 12" wide x 25" long x 8/4 (base); joint and plane flat, thick as possible

**IF** 12" wide boards are difficult to obtain, the alternative is to use 6½"+ width and glue up. You would then require, of course, 16 pieces x 21" long for the side panels and 2 pieces x 25" long (8/4) for the bases. Maintain a center joint line and pay attention to grain flow for best overall cabinet look. Machine side panels to 1" thickness after glue-up. Machine base flat, leave it as 1 piece and as thick as possible.

**Thickness of 1" is very important. A tolerance of +/- 1/32 is acceptable, but all side panels and top cap must be of the same thickness.**

Select material without knots, holes, splits, and other defects.

Plan ahead to eliminate these areas as you cut your pieces to size.

### **Speaker Clamps:**

1 pc: 2' x 4' Plywood panel ¾" thick (better quality / flat)

### **Speaker Stands:**

Same species as your speaker choice, or a complimentary wood tone if you desire

2 pcs: 5" wide x 24" long x machined to ¾" thick

4 pcs: 8" wide x 24" long x machined to ¾" thick

1 pcs: 12" wide x 25" long x 8/4; joint and plane flat, thick as possible

## **ELECTRONICS KIT**

You need to purchase and bring this kit with you to class !

Purchase the following from:

Madisound Speaker Components  
8608 University Green #10  
Middleton, Wisconsin 53562  
PHONE: (608) 831-3433  
[www.madisoundspeakerstore.com/2-way-speaker-kits](http://www.madisoundspeakerstore.com/2-way-speaker-kits)

### **ORDER:**

- (1) Zaph Audio SR71 Kit-Pair

### **IMPORTANT!**

From the drop-down menu **you must select**

- Crossover: Standard Crossover Network [w/ ESA Caps]
- Accessories: Optional Accessory package

The total cost at time of writing was \$454, and does not including 'ship to' location Madisound offers free shipping on items over \$120.

### **Additional hardware required:**

Purchase the following from:

Parts Express  
725 Pleasant Valley Drive  
Springboro, Ohio 45066  
Phone: (937) 743-3000 or (800) 338-0531  
[www.parts-express.com](http://www.parts-express.com)

Dayton Audio BPA-38G HD Binding Post Pair Gold - 2 pair \$7.78 Ea  
(Parts Express Part #: 091-1245)

Dayton Audio DS S3-G Gold Speaker Spike Set - 2 sets \$11.90 Ea  
(Parts Express Part #: 240-676)

For any questions about this class, please contact either Nick or Scott at the above phone or e-mail



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## COURSE OUTLINE

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### **Monday:**

#### **AM**

- Welcome by Marc Adams
- Introductions
- Review of our speaker project, the SR71 Kit
- Evaluate status of your material
- Lecture / PowerPoint (presented throughout the week)
  - o Audio History, Speaker Pioneers
  - o Properties of sound and how it's represented electrically
  - o Elements of a Speaker – Parts & Construction
  - o Crossover networks
  - o Understanding component parameters & what they mean
  - o How to select & match up parts
  - o Enclosure Design
    - Types, shapes, material, cabinet volume, damping, port tuning
  - o Resources – Parts Express, Madisound, Textbooks
- Machine & assemble cabinet clamps
- Table Saw side panels to pyramid shape

#### **PM**

- Table Saw side panels to pyramid shape (continued)
- Cabinet assembly – dry fit up
- Cut top cap and bottom base

## **Tuesday**

### **AM**

- Front Panel:
  - o Layout of woofer and tweeter (Option: Tweeter offset)
  - o Cut holes for tweeter & driver
  - o Test fit tweeter & driver
  
- Rear Panel: Layout and cut port hole; drill holes for terminals
  
- Lecture
  - o Woofer & Tweeter placement / performance benefits
  - o Importance of port tuning

### **PM**

- Cabinet assembly & glue up (exclude bottom base)

## **Wednesday**

### **AM**

- Cut & Install dampening material to inside of cabinet panels
  
- Attach bottom base
  
- Cabinet Finishing Details
  - o Lecture – Details that optimize look and sound performance
  - o Rounding the edges
  - o Sanding & Apply finish

### **PM**

- Sand, Apply Stain and/or Finish
  
- Lecture:
  - o Installing the electronics & hardware
  - o Review crossover network & circuit diagram
  - o Techniques / how to solder

## **Thursday**

### **AM**

- Speaker assembly
  - o Install crossover, terminals, port, tweeter, woofer

### **PM**

- Continue / complete speaker assembly
- Test your speakers

## **Friday**

- Speaker Stands: fabricate & assemble
- Attaching Stands to the speakers
- Lecture – Speaker placement / room dynamics for optimal sound performance
- CLEANUP BEGINS AT 3PM