DIY Chime Set Plans

By: Lee Hite

A great sounding set of wind chimes can be built for about $40 depending on the size you select. Choose from four height selections ranging from 36 to 75 inches (900-1900 mm).

This 5-chime set uses the C9 Chord (C, E, G, Bb, & D) tuning, which is similar to the pentatonic scale, but has a wider note separation for a better sound close in and at a distance.

Add your creative touch by altering the material and style used for the top support disk, striker and wind sail.

Probably your largest challenge will not be building the chime set but locating tubing. Sources often come and go. To ease the search for tubing we have listed numerous sources and suggestions.

Construction

1. **First, decide on the overall size (height) for your chime set. Selections include four height categories based on the octave selected for the C9 Chord (C2, C3, C4 or C5). Space permitting, the longer the chime tube, the lower and richer the sound. The C2 octave (longest) is used for the set shown at the right-hand side of the page.**

   LARGE
   C2 Octave for the C9 Chord
   Approximate overall height about 75 inches (1900 mm)
   Longest chime about 60 inches (1525 mm)
   Quantity of 60-inch tubes required = 5

   MEDIUM LARGE
   C3 Octave for the C9 Chord
   Approximate overall height about 58 inches (1470 mm)
   Longest chime about 43 inches (110 mm)
   Quantity of 60-inch tubes required = 5

   MEDIUM
   C4 Octave for the C9 Chord
   Approximate overall height about 46 inches (1170 mm)
   Longest chime about 31 inches (790 mm)
   Quantity of 60-inch tubes required = 3

   SMALL
   C5 Octave for the C9 Chord
   Approximate overall height about 36 inches (915 mm)
   Longest chime about 22 inches (560 mm)
   Quantity of 60-inch tubes required = 2

2. **From your decision in step one, acquire the required number of one inch outside diameter tubing .**

   As of this writing here are various sources.

   A. **Online Metals:** 1 inch OD x 0.125 inch wall x 0.75 inch ID Aluminum Round Tube 6063-T52-Extruded, 60 inches long about $20/each
   https://www.onlinemetals.com/en/buy/aluminum/1-od-x-0-125-wall-x-0-75-id-aluminum-round-tube-6063-t52-extruded/pid/21001

B. **Speedy Metals** accepts orders for small quantities of tubes or rods (Aluminum, Brass, Cast Iron, Copper, Steel and Stainless). 1 inch OD aluminum x 0.870 inch ID x .065 inch wall 6061-T6 Aluminum Tube. https://www.speedymetals.com/c-8371-category.aspx?thickness=1

C. Amazon: set of five (5 pcs) aluminum tubes, 1 inch diameter x 60 inches long, 0.024 inch wall thickness for $24**.** https://www.amazon.com/Design-House-564740-Aluminum-Polished/dp/B07Q6KM3YJ/ref=sr_1_20?crid=1NS2W87ONTFPL&keywords=aluminum+shower+curtain+rod&qid=1650535530&s=hi&sprefix=aluminum+shower+curtain+rod%2Ctools%2C72&sr=1-20

D. **Amazon:** 1¼ inch diameter x 72 inches long x .057-inch wall thickness (1 pcs) bright dipped aluminum, about $31/each https://www.amazon.com/M-D-Building-Products-61465-057-Inch/dp/B000I1E9B2/ref=sr_1_4?crid=SMIZJCD1B6LB&keywords=aluminum+tubing&qid=1649068986&sprefix=aluminum+tubing%2Caps%2C131&sr=8-4

E. **Lowes Home Improvement (online):** 1 inch OD x 60 inches long, stainless steel shower curtain rod, ID not specified (1 pcs). Cost about $9-each. Must measure ID then use this CHART to calculate lengths. https://www.lowes.com/pd/Project-Source-60-in-to-Stainless-Steel-Fixed-Single-Straight-Shower-Rod/1000616647

F. Home Depot (online): 60 inch long aluminum shower curtain rod, OD and ID not specified. Probably 1 inch OD. Cost about $8- Must measure OD and ID then use this CHART to calculate lengths. https://www.homedepot.com/p/Glacier-Bay-60-in-Aluminum-Builders-Shower-Rod-in-Chrome-HD14016/205699635#overlay

3. Now determine the length for each of the five tubes by first selecting the octave C2, C3, C4 or C5 and then the appropriate pre-calculated chart.

On the website are pre-calculated values using the C9 Chord for steel EMT electrical thin wall conduit and for copper (Type M or L), available at home improvement stores, hardware, etc.

Pre-calculated C9 Chord values for steel EMT and Copper **and look for this chart. Download the chart for your selected metal and size.**

Pre-calculated Tube Length and Hang Point C9 Chord [English and Metric] PDF			
Nominal Size Inches	Copper Type L Blue	Copper Type M Red	Steel EMT Thin-wall
1/2	Copper	Copper	EMT
3/4	Copper	Copper	EMT
1	Copper	Copper	EMT
1 1/4	Copper	Copper	EMT
1 1/2	Copper	Copper	EMT
2	Copper	Copper	EMT
2 1/2	Copper	Copper	EMT
3	Copper	Copper	EMT
3 1/2	Copper	Copper	EMT
4	Copper	Copper	EMT

If you select a metal other that steel or copper, you can use any of these calculators. You enter the type of metal, OD and ID and the calculator displays the length and the hang point location.

A. C9 Chord using this Excel *CHART*
B. Online calculator *HERE*.
C. Cellphone app calculator *HERE*
D. If you desire a tuning other than the C9 chord, use this *pre-calculated chart* and select your specific frequencies or use this *All Notes* calculator.

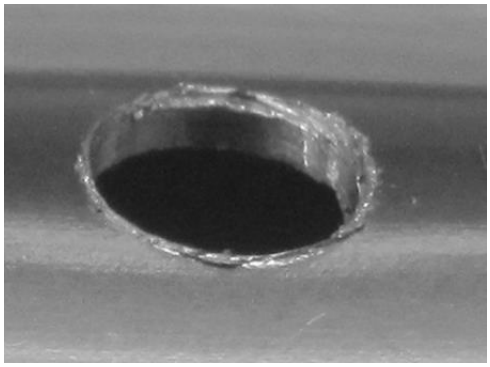
4. For example, if you use the Excel calculator, find your selected octave and use the lengths and hang points in that section. It will look like the picture to the right.

Note	Freq Hz	Length inches	Hang Point	Length mm	Hang Point
C2	65.40	60 3/4	13 5/8	1541.8	345.7
E	82.40	54 1/8	12 1/8	1373.7	308.0
G	98.01	49 5/8	11 1/8	1259.5	282.4
$A^{\#}/B^{b}$	116.50	45 1/2	10 3/16	1154.8	258.9
D3	146.80	40 9/16	9 1/8	1029.5	230.8

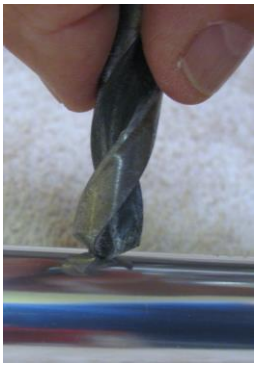
NOTE: If you selected the C2 octave for tubing you would notice the required length for C2 slightly exceeds 60 inches. Use the 60-inch length, as is, for C2, rather than 60 ¾ inch from the table. This slight reduction in length will not alter the overall sound of the wind chime set. This would not be acceptable for a musical application.

4. Drill a 1/8 inch or 3/16-inch holes (size determined by support line) at the hang point using the hang-point measurement in the chart you have selected. The hang point distance is measured from the end.

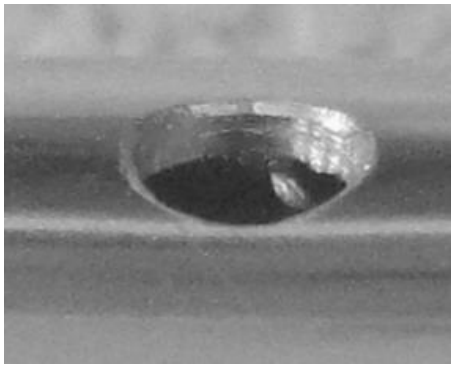
5. Using a drill bit larger than the hole, place the bit on the outside of the hole and lightly rotate by hand. This is generally enough to de-burr the outside hole.



Outside Before

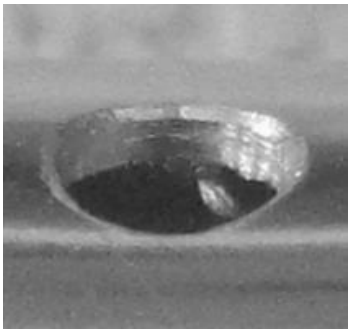


De-burr

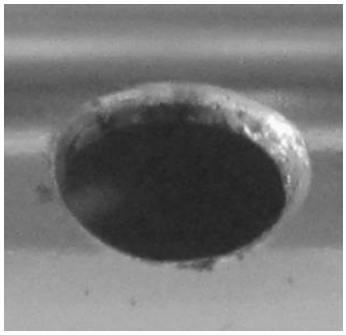


Outside After

6. **De-burr the inside support hole. First, using a round or half-round file, remove the burr from inside the tube. Finish the task by using a section of coat hanger wire with a small bend at the far end. Place the wire in a drill and insert the bent end thru the hole. As you rotate the wire, lightly pull back on the drill and the bent wire will bend over any inside burr. See picture below.**



Inside Before



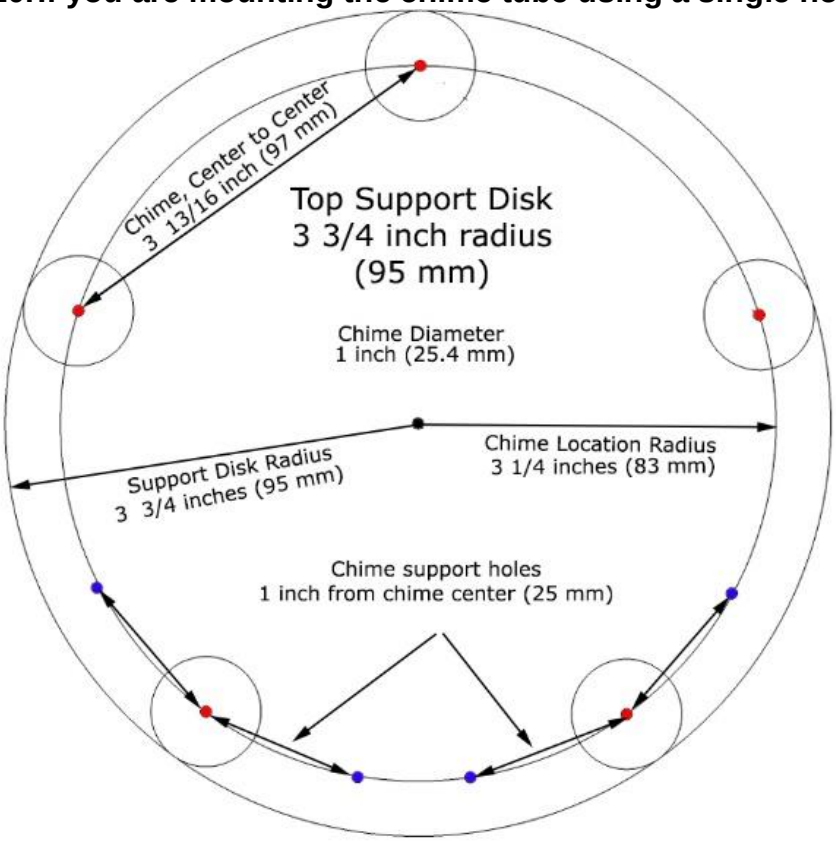
Inside After

7. **Build the support disk. Select material for the top support disk and striker that has good weather durability like red cedar, white cedar, treated lumber or engineered lumber. Also, creative materials might include a discarded nylon or plastic cutting board, decorative metal or plastic plates, funnels or other surprises found at flea markets.**

8. **Layout the top support disk according to the drawing on the next page. Draw and cut on a circle with a radius of 3 3/4 inches (95 mm). This is the outside diameter for the disk.**

9. **Draw a second circle with a radius of 3 ¼ inches (83 mm). Adjust a compass to exactly 3 13/16 inches (97 mm). Beginning at any random point on the 3 ¼ inch radius circle and walk the compass in both directions, making a mark every 3 13/16 inch (Red Dots). Moving the compass in both directions from the start helps to reduce measurement error. This will identify the center location for each of the 5 chimes.**

10. **If you are mounting the chime tube using a single hook for each chime, then this mark is the location for that hook. See page 9 for a picture of chime center mounting.**



11. **On the other hand, if you are supporting the chime tube with line or cord from each side of the chime, then mark a spot 1 inch (25 mm) each side of chime center (Blue Dots). That is the location for drilling a hole or mounting a hook to connect the side supported chime tube (most common).**

Top Support Disk Layout

Diagram (bottom side)

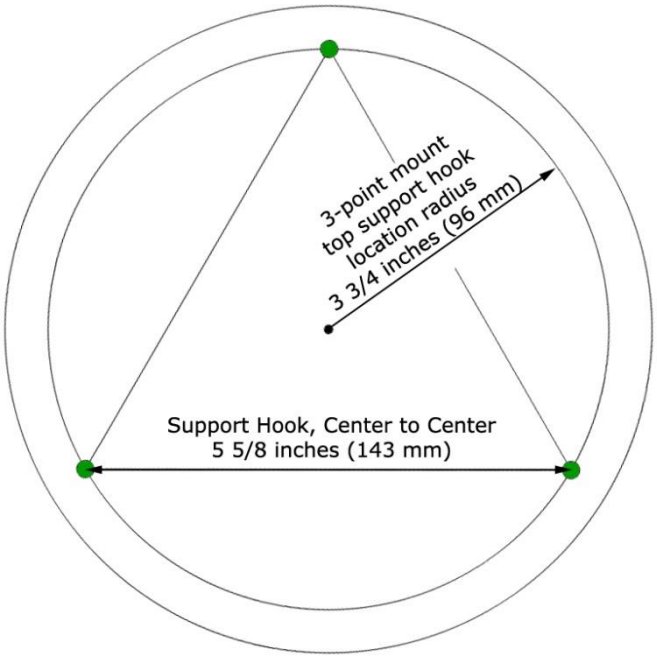
Top support disk radius = 3 ¾ inch (97 mm)
Chime location circle radius = 3 ¼ inches (83 mm)
Chime, Center to Center = 3 13/16 inch (97 mm)
Chime support hole location = 1 inch (25 mm) each side of center
Striker radius = 1 3/4 inches (45 mm)

Bottom side, support disk layout.

If you're using a single line from the center of the tube to hang the chime, use the red dots for locating their support hook. On the other hand, if you're using two lines on the outside of the chime for support, use the blue dots to locate their support holes or hooks.

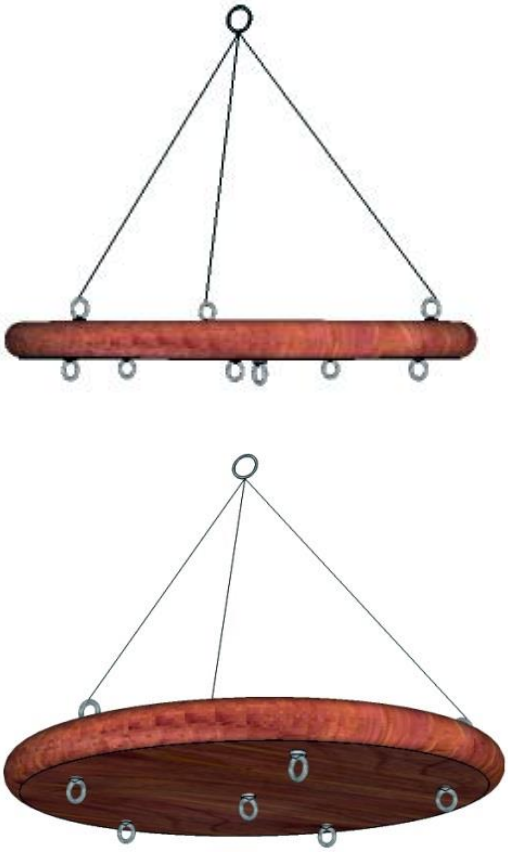
12. **The top support disk can be hung using a single point mount or a 3-point mount. The single point mount uses an aluminum turnbuckle or steel screw eye as shown below.**

    To locate the marks for a 3-point mount, draw a circle with a radius of 3 ¼ inches (83 mm). Adjust a compass to exactly 5 5/8 inches (143 mm). Beginning at any random point on the 3 ¼ inch radius circle, walk the compass around the circle making a mark at all three locations (Green Dots). Insert small screw eyes at each location.



Top Support Disk Layout

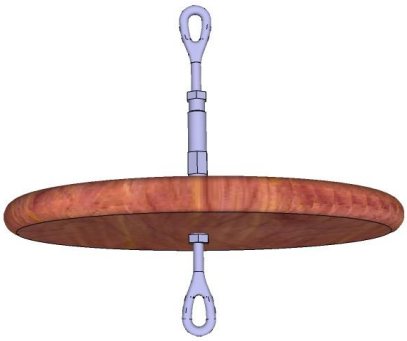
3-Point Mount



Single Point Mount
using a turnbuckle
or screw eyes

13. **Construct a striker with a radius of 1 ¾ inches (44 mm) from ½ to ¾ inch (12 to 16 mm) thick material. If possible, shape the edge into a bullet nose curve.**

It is important that the striker hang horizontal and that can be accomplished using a 3/16" or ¼" aluminum turnbuckle as its axis. Locate the turnbuckle on the top side of the striker with the lower hook on the bottom side, as shown below. The bottom hook connects to the wind sail. This arrangement also works well to hang the top support plate. Use a locking nut at the top to prevent the bolt from loosening as the chime set twist in the wind. This same arrangement can be accomplished using screw eyes.



14. **Make a wind sail about 4 to 6 inches in size from thin material about 1/8 inch thick or less. Drill a small hole at the edge to connect the striker line. A few creative examples are here.**

15. **String the chime in preparation for attachment to the top support disk using method 1, 2 or 3, as follows:**

Method 1 (outside support lines)

Picture A: Begin by holding the tube vertically and threading the support line into the hole from the outside, allowing it to fall out the bottom of the cylinder. Repeat this with a second section of line so you have two separate lines dangling from the bottom.

Picture B: Tie the two inside lines together at their ends.

Picture C: Pull the knot back inside the tube using the outside lines.

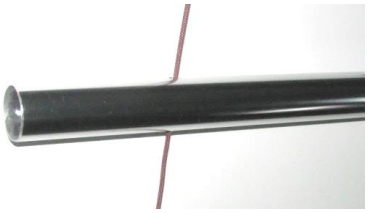
A

B

C

Method 2 **(outside support lines)**

With a little practice, you may be able to thread the line directly through both holes as shown in picture E.



E

Method 3 **(center support line, picture F or H)**

After threading the line using either method 1 or 2 above, tie a knot at the ends of the two lines on the outside of the chime. Pull the line from the center of the tube until the ends are tight against the outside of the tube.

Tie a knot in the loop at the opening of the chime as shown in picture F and H. It's very important to tie this knot as close to the inside of the tube as you can. This knot will center the line in the tube and prevent it from touching the end of the tube, which would deaden or kill the chime sound.

F

Two lines tied together

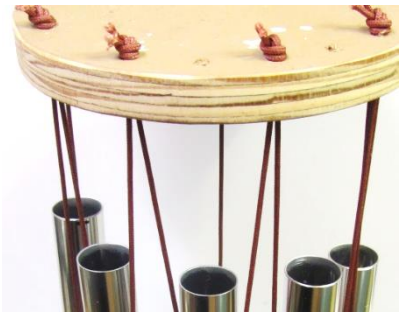
or

G **H**

One continuous line

16. **Attaching the chime to the top support disk: If you're using the dual line method of support (method one, picture C) thread each line through its respective hole (blue dots, page 5) and tie a knot. See picture J, each line has its own hole or K, two lines share a hole.**

J



K

Note: the plywood disk shown was for picture taking only and not recommended for outdoor use. The support line is heavier than required and used just for pictures.

Longevity for a chime is important and careful attention to the support lines and thru holes should be considered. Rapid wind changes and UV light can quickly deteriorate support lines, not to mention the many freeze/thaw cycles.

Nonmetallic support line:

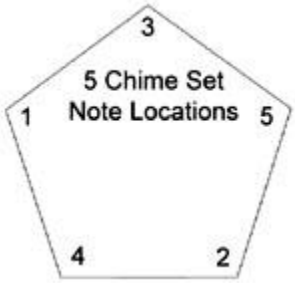
Make sure the line is UV resistant. Choices include fishing line (either 80 pound braided or 30-50 pound monofilament), braided nylon line, braided plumb line, braided Dacron kite line, Venetian blind cord, string trimmer/weed eater line (.065 inch), awning cord, and braided electrical conduit pull line.

Metallic support line:

Thin wire, decorative chain (zinc plated, brass plated, or painted), 1/32 or /16 inch stainless steel cable (rust resistant), small aircraft control line cable.

If you're using the center loop method for support, then attach the line to a small hook on the underside of the support disk as shown right.

Chime configuration:



A circular striker will typically strike one chime at a time and can simultaneously strike two chimes. To enhance the overall sound, place widely separated notes next to each other. For example, to the left are location suggestions for sequencing, with chime number 1 as the shortest and 5 as the longest.

Numerous other support methods are available and described in the [DIY Tubular Bell Chime Handbook] and shown below.

Below are a few examples for supporting the wind chime set from website visitors.







17. **Connect the striker to the bottom of the support disk, positioning it to rest about 1 to 3 inches above the shortest chime, as shown here.**

18. **Connect the wind sail to the bottom of the striker positioning it to hang about six inches or more below the longest chime.**

19. **After you hang the chime set in your favorite location and because of your local wind conditions, you may find that you are not completely satisfied with the performance of the set. They may chime too much or too little. Because wind conditions vary from location to location, feel free to modify the size and/or weight of the wind sail to produce the desired sound. I often find that a new design requires some adjustments after the initial design.**

    If you live in a strong wind area and the chimes are playing too much and adjusting the size and weight of the sail did not quiet them down as you wanted, try slightly reducing the diameter of the striker to compensate for strong winds.

Typical hooks and a turnbuckle found in in the hardware section