ASSEMBLING A (FREESTANDING) BEE HOTEL!

DESIGNED FOR HIGH TRAFFIC URBAN GREEN SPACES BY DR. RUSSELL'S BEE TEAM

THE GOAL:

- HOUSE NESTING MATERIALS FOR OVERWINTERING BEE LARVAE
- SECURE IN MULTIPLE WAYS TO PREVENT DISTURBANCE BY HUMANS, SMALL ANIMALS AND WEATHER

EXTERIOR MATERIALS:

- PROLEE SCREECH OWL HOUSE KIT
- 3/4 X 12 INCH GALVANIZED STEEL PIPE
- 3/4 INCH MALLEABLE IRON CAP
- 3/4 INCH MALLEABLE IRON 90° ANGLE
- (4) #10 FLAT WASHERS
- (2) 3/16TH INCH (#10-24) BOLTS
- (2) #10-24 MACHINE SCREW NUTS
- (1) GALVANIZED TUBE STRAP, 1 INCH
- 1 1/8 INCH CIRCULAR WOOD SAW (FLAT DRILL SAW ACCEPTABLE)
- DRILL BIT SET
- PLIERS
- ELECTRIC DRILL

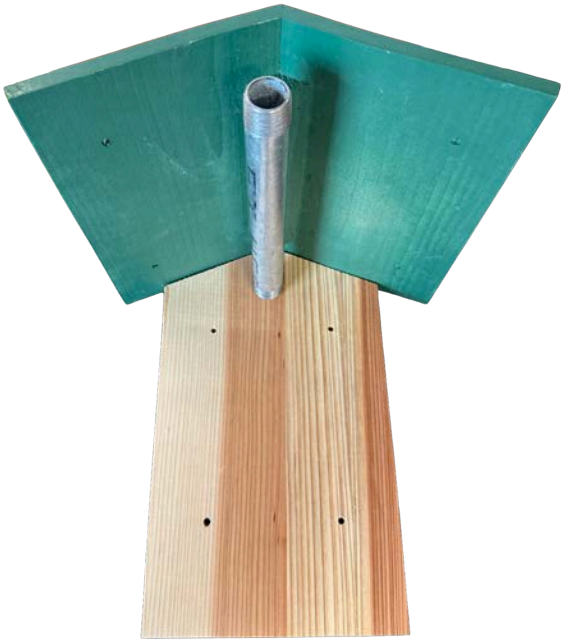
1) UNPACK YOUR PRE-FABRICATED OWL HOUSE AND CONFIRM PIECES ARE ALL ACCOUNTED FOR

A - FRONT DOOR (WILL NOT USE IN FINAL PROJECT, CAN USE AS SCRAP WOOD TO PRACTICE DRILLING TECHNIQUE)
B - ROOF
C - (2) SIDES
D - BAG OF SCREWS (4 LONG, 23 SHORT; 14 SHORT NEEDED FOR PROJECT) + SCREWDRIVER
E - BACK PIECE
F - BOTTOM

2) GATHER THE ROOF AND THE BACK PIECE, ALONG WITH AN 1 INCH GALVANIZED TUBE STRAP AND THE METAL PIPE

3) PLACE THE BACK PIECE ON A FLAT SURFACE, WITH THE NICEST SIDE FACING UP. PLACE THE ROOF PIECE SUCH THAT THE PITCH OF THE ROOF SITS FLUSH WITH THE POINTED TOP OF THE BACK PIECE AS PICTURED

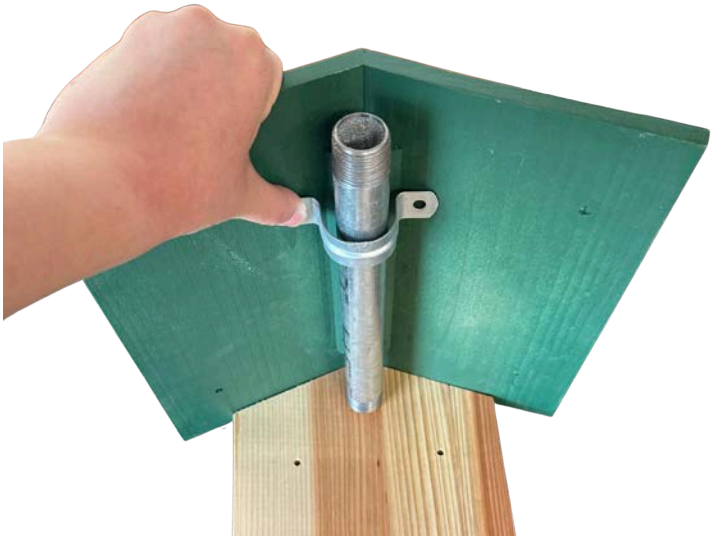
BALANCE THE METAL PIPE ON TOP OF THE BACK PIECE, DIRECTLY CENTER UNDER WHERE THE ROOF SITS



4) TAKE YOUR TUBE STRAP/BRACKET AND HOLD IT SUCH THAT IT MIMICS ITS POTENTIAL FINAL PLACEMENT ATTACHING THE PIPE TO THE ROOF.

MAKE SURE THE BRACKET SITS WELL BELOW THE THREADS; WE NEED TO BE ABLE TO SCREW A CAP ON LATER

THIS WILL HELP US FIGURE OUT WHERE TO DRILL FUTURE HOLES



5) TAKE NOTE OF WHERE THE BRACKET MEETS THE ROOF

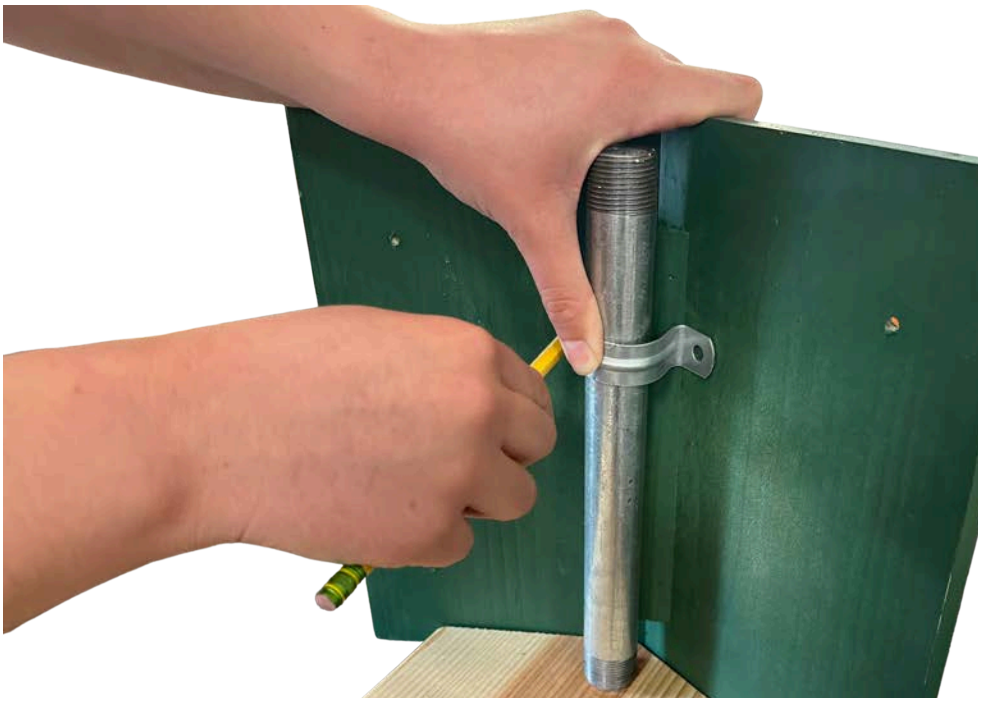
THE ENDS OF THE BRACKET DO NOT CURRENTLY SIT FLUSH AGAINST THE ROOF

FIX THIS BY BENDING THE ENDS GENTLY WITH PLIERS. CHECK FIT AND ADJUST AS NEEDED UNTIL BRACKET ENDS ARE FLUSH WITH THE ROOF

6) ENSURE THE PIPE CAN STILL FIT THROUGH THE BRACKET WHILE THE NOW-ADJUSTED BRACKET IS FLUSH WITH THE ROOF.

NOTE: IT IS VERY IMPORTANT THAT THE PIPE STAYS CENTERED UNDER THE ROOF HERE, OR THE ENTIRE HOTEL WILL LIST TO ONE SIDE

USE A PENCIL TO MARK WHERE THE BRACKET'S SCREW HOLES NOW SIT.



MARK THE CIRCUMFERENCE OF WHERE THE PIPE SITS ON THE BACK PIECE. MOVE PIPE AND ROOF TO THE SIDE.

7) PREP TO DRILL A HOLE IN THE BACK PIECE FOR THE PIPE

GATHER THE MARKED BACK PIECE, A PIECE OF SCRAP, AN ELECTRIC DRILL, AND AN 1 1/8 INCH DRILL BIT WITH A SAW TOOTHED EDGE (LIKE PICTURED)

PLACE YOUR BACK PIECE WITH THE CIRCUMFERENCE-MARKED SIDE FACING UP. PLACE THE SCRAP WOOD UNDERNEATH TO PROTECT YOUR WORK SURFACE.

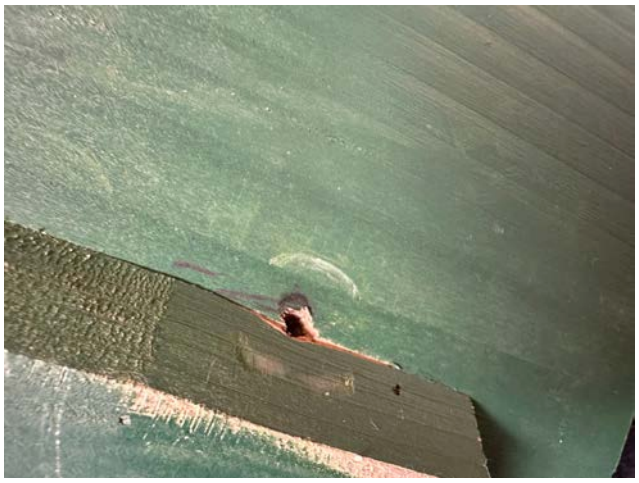
8) CENTER THE 1 AND 1/8 INCH DRILL BIT ON THE CIRCLE YOU DREW EARLIER, THEN DRILL A HOLE THROUGH THE BACK PIECE.

CONFIRM THE PIPE FITS (IF YES, YOU USED THE CORRECT SIZE DRILL BIT!)

9) CHECK THAT THE BRACKET PLACEMENT STILL MAKES SENSE, EVEN WITH THE THREADED PORTION OF THE PIPE STICKING OUT THE BACK OF THE HOLE., THEN PREP TO DRILL THE BRACKET SCREW HOLES

SWAP TO A VERY SMALL DRILL BIT TO DRILL A PILOT HOLE. DRILL FROM YOUR PENCIL MARKS THROUGH TO THE TOP OF THE ROOF. SWAP TO A 3/16TH DRILL BIT, AND DRILL WHERE THE PILOT HOLE POPPED OUT THE TOP OF THE ROOF, TOWARDS YOUR PENCIL MARKS. THIS SHOULD LEAVE YOU WITH A CLEANER HOLE FACING THE OUTSIDE.

DRILL SLOWLY! THE ROOF PAINT SOMETIMES CRACKS.



10) TAKE A 3/16 MACHINE SCREW AND TEST THAT IT FITS THROUGH EACH OF THE ROOF HOLES.

IF YES, CONTINUE. IF NO, USE A SLIGHTLY LARGER DRILL BIT ON THE HOLES TO EXPAND THE THEM.

11) GATHER THE SUPPLIES NEEDED TO ATTACH THE BRACKETS

TWO 3/16 INCH (#10-24) MACHINE SCREWS, TWO #10 FLAT WASHERS, TWO #10-24 MACHINE SCREW NUTS, ONE 1 INCH BRACKET AND THE ROOF PIECE

12) THREAD A MACHINE SCREW WITH A WASHER, THEN STICK IT THROUGH A ROOF HOLE

13) THREAD BRACKET HOLE, ANOTHER WASHER AND A SCREW NUT ON THE INSIDE END OF THE MACHINE SCREW

14) REPEAT FOR OTHER SCREW HOLE

TIGHTEN THE NUTS AS MUCH AS YOU CAN WHILE STILL ALLOWING THE PIPE TO FIT THROUGH THE BRACKET AND THE HOLE IN THE BACK PIECE.

15) USE THE OWL HOUSE ASSEMBLY INSTRUCTIONS TO SCREW THE SIDES TO EACH OTHER AND THE BASE, THEN ATTACH THE ROOF (ALL OF THE HOLES ARE PREDRILLED). YOU SHOULD NOW HAVE AN FULLY ASSEMBLED BEE HOTEL EXTERIOR.

TEST FIT THE PIPE WITH THE BARREL ASSEMBLY IF POSSIBLE TO CONFIRM IT FITS PROPERLY.

NEXT STEP IS ADDING THE NESTING MATERIALS INTO THE INTERIOR!!!

BEE HOTEL INTERIOR!

NESTING MATERIALS:

- MISCELLANEOUS HOLLOW AND PITHY STEMS OF VARYING DIAMETERS
- UNTREATED WOOD WITH HOLES BORED IN IT
- THICK, CLAY RICH MUD

1) NESTING MATERIAL PREPARATION

- CUT STEMS INTO ~6 INCH SECTIONS, LONG ENOUGH FOR BEES TO NEST BUT SHORT ENOUGH TO STAY DRY WITHIN THE HOTEL
    - STEM NESTERS LOOK FOR HOLES SLIGHTLY LARGER THAN BODY AND WILL NOT TAKE THE TIME TO PAD THE HOLE TO FIT
- MINIMUM HOLE SIZE = 2 MM, MAX = 12.7 MM; DEPENDS ON SPECIES
- MAKE SURE CUTS ARE CLEAN, ROUGH EDGES COULD DAMAGE THE BEE'S WINGS AS THE ENTER/EXIT!!!

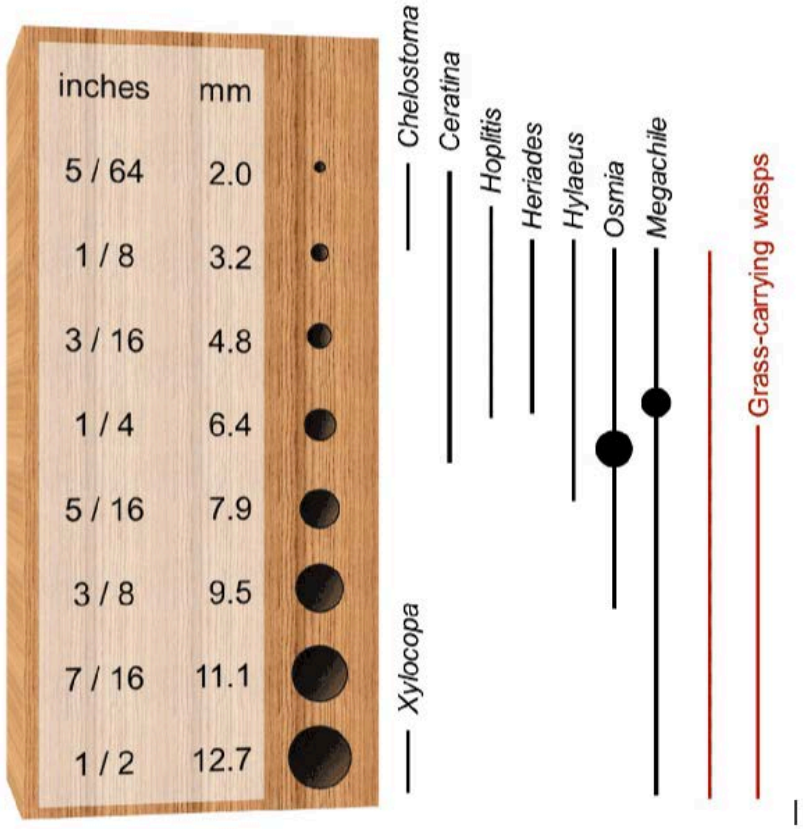


Figure 46. Ranges of nesting tunnel diameters used by species native to North Carolina. Specific ideal diameters for the blue orchard bee (7.5 mm, 19/64") and alfalfa leafcutting bee (6 mm, 15/64") are indicated with larger black dots on the range lines. Bees are shown in black, wasps in red.

2) SECURING NESTING MATERIALS

- PLACE THE HOTEL ON A FLAT SURFACE WITH THE OPEN SIDE FACING UP
- MIX SOME MUD TOGETHER UNTIL IT RESEMBLES THE TEXTURE OF PLAY-DOH
- USING THE MUD, SECURE THE HEAVIEST NESTING MATERIALS TO THE BOTTOM THIRD OF THE HOTEL
- FILL THE REMAINING SPACE BELOW THE PIPE HOLE WITH MUD, AND FILL WITH THE COLLECTED STEMS OF DIFFERENT SIZES AND MATERIALS
- MAKE ~50 AVAILABLE HOLES ACROSS THE ENTIRE HOTEL; MORE CAN CAUSE OVERCROWDING
- LET DRY COMPLETELY.