



## Build a Nesting Block

### Nesting Block Preparation

This process of nest block construction that we depict employs some very specific techniques. We have found, through over twenty years of research, that these details optimize our success for trap-nesting the larger-bodied solitary bees in our region (i.e. Blue Orchard Bee). "Optimal" in this sense means that a good fraction of the progeny are females, that the incidence of parasitism and disease in nest cells is acceptably low, that nesting females find the attributes of the blocks attractive, and that blocks remain functional for years of use. Many of you will probably want to tinkered with some of these attributes if you are setting your blocks up for smaller species (i.e. 4 inch deep holes are adequate for bees the size of the alfalfa leafcutter although the 3/4 inch spacing is still best) or for other reasons. Be aware that such alterations may affect the health of your nesting population and the number of female progeny that are produced for the next generation. Unfortunately, this is not readily observable by merely counting plugged holes or even numbers of cells produced, since parasites and sex of the determined by these observations. Even worse, mother bees will sometimes create empty cells or even plug empty nest holes. If you want to determine the health of your population and clean out obvious predators/parasites, carefully cut a very shallow slit lengthwise in your straws, being careful to avoid cutting into the cocoons. Chilling and later incubating a subset of the normal emergence time for the particular species) will reveal the sex ratio of your trap-nested population and the frequency of parasites hidden within the cocoons.

**Drilling:** We cut 4" x 6" or 6" x 6" dried pine or fir posts into blocks. We drill 6" deep holes across the grain through the block. Hole centers are spaced 1/2" apart. For straight holes start with a drill press and then complete with a hand drill, if necessary. Holes are drilled completely through the block to facilitate dipping and annual cleaning of nest holes.



**Charring:** Faces of drilled blocks are lightly charred using a propane torch. The darkened surface is more attractive to nesting females.



**Sealing:** Drilled blocks are dipped once in water-based polyurethane. Excess is drained and the blocks are set aside to dry for several days.



**Redrilling:** Blocks are secured in a vise and all holes redrilled using a portable drill and a bit matching the original hole size. Redrilling yields smooth-walled holes that will withstand years of outdoor use without cracking or warping.



**Backing:** The uncharred back of a block is sealed with an adhesive tape. We use a foil type, duct tape may work for one season's use. The tape is firmly burnished. We seal the edges with hot glue (black in picture), which should also be used to seal cracks at this time.



**Trimming:** Straws are cut to be slightly recessed in the hole. Note that we paint the tips black, making them more attractive to nesting females.



**Sanding:** Fine-grained sand is sifted over the tops of the strawed blocks. The sand covers the sticky surface of the backing tape, and helps to wedge straws in place. Excess sand is then dumped from the block.



**Burnishing:** A pencil tip is spun or twirled briefly in the tip of each straw. This firmly seats the straw and clears the straw tip of stray fibers and paper burrs.



**Straw pulling:** Inexpensive surgical hemostats provide a firm grip for withdrawing snug straws from blocks after the nesting season. Hemostat tips can be ground or filed to a thin, flat tip to better grip straws in holes. Small needle-nosed pliers may also work for this purpose.



**Straw selection:** We use paper straw inserts to allow convenient nest removal and inspection, wintering, and annual cleaning of holes. Paper straws and paper tubes are becoming more widely available a general web search will provide current suppliers. Thinner-walled straws are more easily slit for inspection.



