
Design

There are countless bee hotel designs available for purchase or DIY building. Some of these designs are better than others. Please follow the following best practices when choosing a design:

- Keep your bee hotel **small** to minimize disease transfer.
- Ensure tunnels are at least **6” deep and closed off** on the back to prevent predators from sneaking in.
- Ensure **tunnel diameter is between 1 and 10 mm** to facilitate the needs for the variety of native bees that nest in these tunnels.
- Ensure **tunnels are greater than 1 mm thick**.
- Ensure tunnels are made from a **natural material** that is breathable.
- If possible, **space tunnels 3/4” apart** especially for hotels that have a flat entrance. This helps the females to quickly find the right tunnel.

Select a design that is easy to clean. See the ‘Maintenance’ section for more information.

Placement

Place the solitary bee hotel securely on a structure that will not move (e.g., a shed, garage, fence post, etc.). Situate the front of the bee hotel so that it is south or east facing, and shield it from rain, wind and direct afternoon sunlight. Placement near large visual landmarks can help foraging bees navigate back to their nest.

Maintenance

All bee hotels require maintenance. Unnatural aggregation of nesting resources in a bee hotel can facilitate spread of disease and pests.

If your bee hotel uses tubes, insert paper liners or dispose of tubes once the bees have emerged. Clean the inside of tunnels with a pipe cleaner and a mild bleach solution.

Bee cocoons can also be removed from tunnels that come apart. Wear a dust mask, long sleeves and gloves. Remove cocoons in the fall and discard any discoloured or compromised cocoons. Place cocoons in a box or container that has a 0.5” diameter exit hole. Put the container in an unheated garage or other sheltered area for the winter and then transfer outside in the spring. Wash the tunnels with a mild bleach solution.

For more information on bee hotel and cocoon maintenance see: Alberta Native Bee Council; the Xerces Society; Hutchins Bee Service; and Crown Bees.



Photo/Image credits: Sarah Scott, Mark Wonneck, Jordan Steeves, Megan Evans, University of Calgary

Best Practices for Bee Hotels in Alberta



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What Are Bee Hotels?

Bee hotels (also known as solitary bee nesting boxes or bee condos) are manmade structures that provide nesting materials for tunnel nesting bees like leaf cutter or mason bees. A range of nesting materials can be found in different bee hotels - some hotels include blocks of wood with holes drilled in them, while others pack in paper straws, bamboo, or reeds. Regardless of the materials used, bee hotels are intended to support the life cycle of solitary tunnel nesting bees described below.



Figure 1. Examples of different bee hotels.

As shown in Figure 2 on the following page, tunnel nesting bees emerge from nest cells in the spring or summer (1). Upon emerging, the bees find partners to mate with (2). The female then builds lines of nest cells in any suitable tunnel she can find, such as hollow or pithy stems, paper straws, reeds, tubes, or old beetle tunnels in wood. She constructs the nest cells out of leaves, mud, or other natural materials, and provisions each cell with food (pollen and nectar) (3). She lays an egg in each cell before sealing it off and continuing onto the next (4).

The egg develops into a larvae (5), which consumes the food, turns into pupae (6) and typically emerges as an adult the following year (1).



Figure 2. Tunnel nesting bee life cycle.

Do Bee Hotels Benefit Bees?

This might sound like a crazy question, given that bee hotels are designed to provide nesting materials for tunnel nesting bees. However, the jury is out on whether bee hotels are actually beneficial to our native bee species - **they may even be harmful!** Researchers studying bee hotels have found that solitary wasps and non-native bees utilize bee hotels more than native bees do¹! Further, some bee hotels encourage the spread of disease, pests and predators and therefore may have a net negative impact on bees.

¹Maclvor, J.S., and L. Packer. 2015. 'Bee Hotels' as Tools for Native Pollinator Conservation: A premature verdict? PLoS

Should I Build a Bee Hotel?

If your goal is primarily education regarding tunnel nesting bees and their life cycles, then a bee hotel can be a great, kid-friendly tool. If your goal is conservation of native bees then there are less expensive and more effective ways to accomplish this. Planting a diversity of native wildflowers that bloom throughout the season is almost always the best thing you can do to support healthy native bee populations. Another simple strategy is to let nature 'build' bee hotels by allowing a bit of wildness into your yard or garden. A decomposing stump or hollow stemmed plants left standing can provide excellent nesting sites for bees.

If you do build a bee hotel make sure you clean it annually and review the information in this brochure, which we will update as new research is published.

Should I Purchase Bee Cocoons?

The Alberta Native bee Council does not recommend purchasing bee cocoons for release as a beneficial practice for native bees.

There are two primary species available for purchase: the blue orchard mason bee (*Osmia lignaria*), a species native to Alberta and the alfalfa leaf cutter bee (*Megachile rotundata*), a non-native species.

Introducing be cocoons that originated elsewhere can facilitate the spread of disease, introduce maladapted genes into local populations and potentially increase competition for food with native bees.