

# Building Homes for Bats

## Alberta Bat House Guidelines



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**THE CHAWKERS  
FOUNDATION**



This project was undertaken with the financial support of:  
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Environnement et  
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*This guide may be regularly updated. Visit [www.albertabats.ca/resources](http://www.albertabats.ca/resources) for the latest version. Please contact the Alberta Community Bat Program if you have identified errors or have other comments.*

# Background



A custom built bat house installed in Barrhead County

Visit the Alberta Community Bat Program website for:

- [Information on bat houses, including blueprints for building your own bat house](#)
- [Guides for managing bats in buildings \(and other resources\)](#)
- [Information on human health concerns and what to do if you find a dead or injured bat](#)

## What are Bat Houses?

Bat houses are artificial structures where bats can roost when they are not out foraging for insects. Some may be used as maternity roosts, which are locations where groups of mothers come together to raise their pups. They are conceptually similar to bird houses, but differ in several important ways. For example, the opening is at the bottom rather than the front, and bat houses are typically designed to allow up to hundreds of individuals to occupy a single house. Bats do not build nests, but groups of mothers and pups may huddle together to stay warm. Structures that have warm, stable, temperatures may result in faster growth of pups, and increased chances of survival. Males may also use bat houses, but are more likely to occupy cooler roosts, and typically roost alone or with a small number of other individuals. Bats appear to be more discerning than birds when selecting where to live, so careful attention is required to ensure the design, location, and installation are optimal for bats in the province.

## Why Help Bats?

Bats are a primary predator of night-time insects, and are important for maintaining healthy ecosystems. They play an important role in controlling insects, including mosquitoes and pests of forests and crops. Their value to the North American agricultural and forestry sector alone is estimated to be worth billions of dollars annually.

We do not know the actual population sizes for the nine Alberta bat species, and there is uncertainty whether populations are stable, decreasing or increasing. However, populations of aerial insectivorous birds have been declining rapidly over the last few decades, and bats may be experiencing similar declines.

We do know that White-nose Syndrome (a disease introduced to North America by people) has resulted in the deaths of millions of bats since 2006, and is continuing to worsen as it spreads to new regions. This disease is not yet in Alberta, but gets closer every year (see <https://www.whitenosesyndrome.org/resources/map> for the latest range map). We cannot currently stop this disease, but ensuring access to high quality habitat may help those bats resistant to this disease to survive and successfully reproduce.

The loss of old, large-diameter trees because of human development, agriculture, and resource extraction has reduced the number of natural roosting structures in some areas of the province, and has potential to negatively affect bat populations. Many bats use human buildings as roosting sites, but may come into conflict with people. The installation of bat houses may help mitigate the loss of roosting habitat



# Background

in buildings, especially if bat houses are set up well ahead of any bat-exclusions or renovations that eliminate the roosting site.

Bat houses may also help bridge periods of time between forest loss or removal (which has resulted in the elimination of tree-roosting habitat) and maturation of current plantings not yet capable of providing appropriate bat-roost features.

## Should we install a bat house?

Look around where you live. Has urban development removed trees that would once have been used by roosting bats? Are there mature trees, but they will be cut down soon because of safety reasons? Are there trees, but not the kind that will provide roost-features for bats (e.g., peeling bark, crevices, old woodpecker holes)? Bat houses can provide alternate roosting habitat in areas where suitable features are lacking.

Do you have a building with bats? Is the roost safe from disturbance? How stable is the building? Are there plans for demolition or plans to renovate the building that will affect the roost space? Do the owners want to exclude the bats because they feel the bats are causing problems? Often containment of guano and a system for annual clean-up can address some nuisance problems without the need for exclusion. In the cases where bats must be excluded, or the roost site will be compromised, then bat houses are a good option, especially if they are installed well in advance of any changes.

Although bat houses can potentially be an effective addition to conservation plans, there is currently no evidence that bat houses provide the same high-quality roosting conditions that building roosts and natural roosts provide. In particular, there are concerns that some bat houses may expose bats to more extreme temperature fluctuations than other roosting options, which could lower reproductive success. Furthermore, many of our bat species will not use bat houses, and may experience increased competition for resources from bats attracted to these structures. The two species most likely to use bat houses—Little Brown Myotis and Big Brown Bats—have historically been among Alberta's most common bat species.

## Bat Houses Versus Trees

*All bats that use bat houses in Alberta will also roost in trees. However, not all bats that roost in trees will use bat houses. Trees are also important for providing foraging habitat and flight corridors for bats.*



*Photo by Cory Olson*

A decaying Balsam Poplar being used by a Little Brown Myotis maternity colony.



# Background



Photo by Cory Olson

Continual recruitment of new trees is important for the long-term conservation of bats. If possible, plant native deciduous trees, like cottonwood, poplar, or aspen along with your bat house project.



Photo by Erin Low

Pole mounted rocket-box (left) and two back-to-back 4-chamber nursery houses (right)(John Janzen Nature Centre).

To help ensure your bat house will provide a net benefit for bats, consider whether the planned location meets one or more of the following criteria:

- ☑ The bat house is installed to help manage bats in buildings, such as to mitigate the effects of a required exclusion.
- ☑ The bat house is intended to compensate for roosting habitat that has been degraded and is unlikely to be restored, such as often occurs in urban areas, farmland, acreages, and industrial lands.
- ☑ The bat house is installed in conjunction with restoration of natural roosting habitat and will help bridge the time until tree roosting habitat becomes available.

In addition, bats typically return to the same roosting area each year, and could potentially use the same roost for decades. Therefore, **bat house projects are best suited to situations where they will be maintained and made available to bats for many years.** Bats may use many different roost structures throughout the season, so it is best to install multiple bat houses (offering different conditions) and combine with other habitat enhancements, such as tree planting.

## What Bat House Designs Work Best?

There are several designs of bat houses that have potential to be effective in Alberta. However, not all designs are suitable, including many sold commercially within the province.

The best options are designs that are able to retain heat, and have a wide range of internal temperatures for bats to move among. Small bat houses tend to heat up quickly during the day, and cool off quickly during the night, thereby exposing bats to potentially harmful temperature extremes. Larger structures—especially those with multiple chambers—have more stable internal temperatures and have a wider temperature gradient, allowing bats to move around to find better roosting conditions.

Most bat houses have one to four roosting chambers. Multiple chambered bat houses not only provide added roosting space, but also provide a wider range of temperatures to choose among. They are generally more successful than single-chambered designs. Multi-chambered designs may increase reproductive success by allowing mothers to select better conditions for their pups, and by lowering the risk of pups being exposed to extreme hot or cold temperatures.



# Types of Bat Houses

**Bat houses can be grouped into several broad categories:**

**Single-Chamber Bat Houses**—These include a diverse range of different designs with a single roosting chamber. They are generally simple to build and are sold at affordable prices. However, bats tend not to use them as often as multi-chambered bat houses of similar size. They are more likely to experience extreme temperature fluctuations, which could be harmful to bats. These designs are not recommended, but may be acceptable for cooler locations where overheating can be avoided. Single chambered bat houses attached to buildings are likely to be most successful.

**Multi-Chamber Bat Houses**—These designs have two or more roost chambers, typically connected by a passage that allows bats to move between chambers (Figure 1A). This allows bats to find temperature conditions best suited to their particular needs. For example, they may move to a warmer chamber (i.e., the one directly exposed to sunlight) when they are cold, but then move to another chamber if they start to overheat. The additional chambers also allows more bats to use them, and some can support over 300 bats. A recommended design is the [Bat Conservation International Four Chamber Nursery House](#). This design can be modified to make it larger and/or to add additional chambers.

**Rocket Boxes**—These designs have one or more square chambers that wrap around a central compartment or post (Figure 1B). Bats can crawl to any side of the box, potentially making it easy to find the right conditions for raising pups. Additional compartments can be added to increase the options available to bats. Rocket boxes are mounted on a pole or post, and are not designed for mounting on the side of a building. **Preliminary evidence indicates that rocket boxes may have a low success rate in Alberta;** however, more reports are needed to verify this trend.

**Bat Condos**—Even multi-chambered bat houses may not replicate the high quality roosting conditions of buildings. More effective designs, typically called bat condos, have been developed to provide high quality roost conditions that better replicate those of buildings. Condos are essentially really large bat houses, often requiring multiple posts to support their weight. Structures intermediate between a condo and a regular bat house have also been developed, and may be referred to as a ‘mini-condo’, ‘motel’, ‘hotel’, ‘big bat house’, etc. Condos are currently being tested in Alberta and recommendations will be refined as we learn more about these structures. Their effectiveness in Alberta is not yet known. Condos may cost thousands of dollars to build and install, and are best suited to organizations and large landowners (e.g., conservation groups, government, industry).



*Photo by Cory Olson*

Two building-mounted single-chamber bat houses used by Big Brown Bats (Calgary Zoo).



*Photo by Cory Olson*

Quiet Hills Ranch Bat Condo southeast of Edmonton.



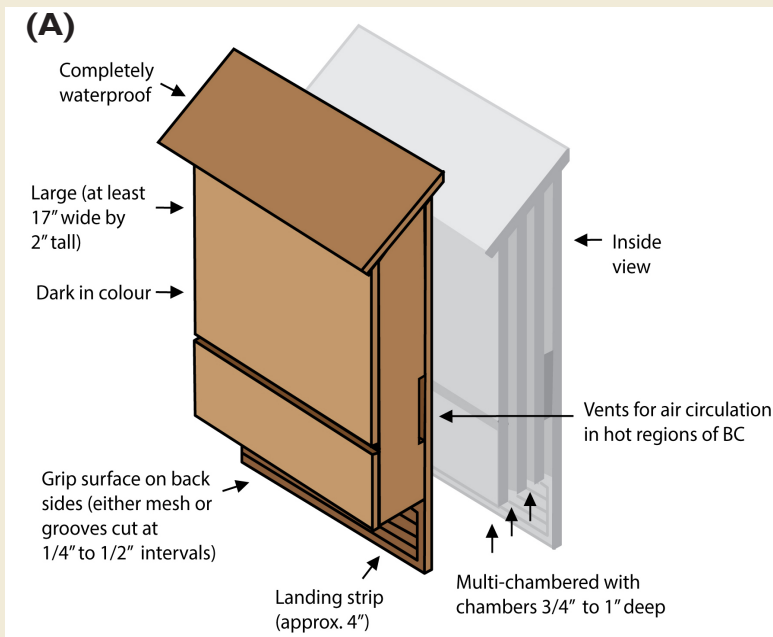
# Types of Bat Houses



Roosting structures installed in the attic of an old barn that are used by a colony of more than 1,000 Little Brown Myotis.

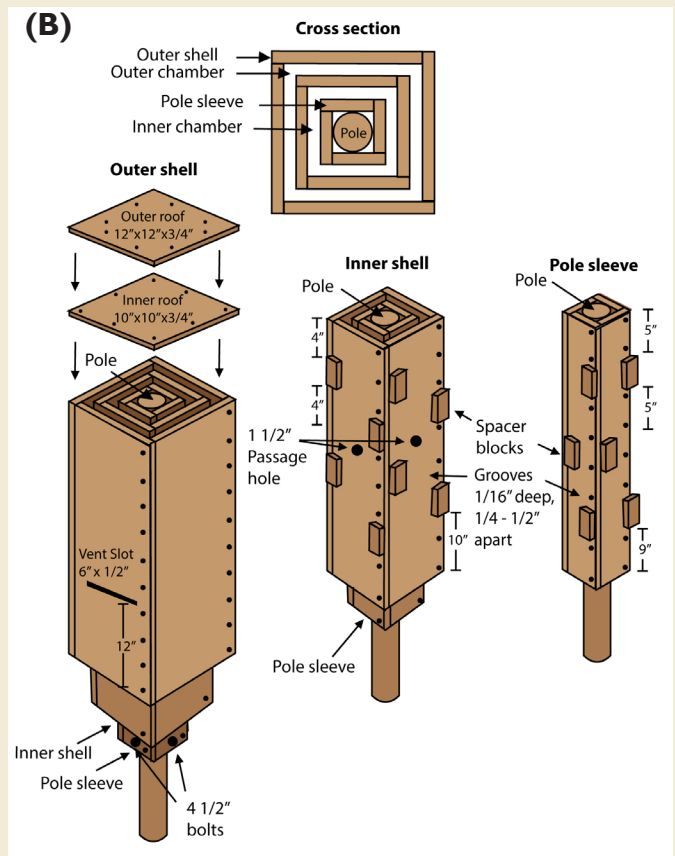
**Slab Roosts / Building Enhancements**—Instead of constructing a complete bat house, existing structures—like an old barn or bridge—could be modified to enhance roosting options for bats. This could include creating ‘chambers’ by attaching vertical plywood panels (or another material) to the walls or roof of a building to create roosting chambers. To create compartments for roosting, 1.9 cm (0.75”) to 2.5 cm (1”) spacers should be installed under the panels. Suitable locations may include a sunny exterior wall, or within a bat-accessible attic or hayloft. The chambers should be sealed at the top to prevent heat loss, be designed to allow entrance at the bottom, and allow a drop into open flight space. A 3 m to 4 m drop is ideal. In confined areas, a 2 m drop may be adequate, but avoid locations where cats can reach bats flying from the exit.

**Alternative Designs**—Various alternative designs have been tried in an attempt to encourage use by species of bats that traditionally do not use bat houses. This includes designs attached to trees that emulate bark roosts or cement products that better emulate rock roosts. These options have rarely been tested in Alberta, but may become more popular as new options become available.



**FIGURE 1.** Key features of a multi-chambered bat house (A) and a rocket box (B).

Diagram courtesy of Community Bat Programs of BC





# Bat House Design

## What are the important design components of a bat house?

Bats will rarely use poorly designed bat houses. Adhering to a few basic principles of bat house design can greatly increase your likelihood of success. Recommended bat house designs and building instructions can be found at [www.albertabats.ca/bathouses](http://www.albertabats.ca/bathouses).

### Minimum Size

Bat houses in Alberta should be at least 61 cm (24") tall and 43 cm (17") wide. For rocket boxes, the height should be at least 0.9 m (3') tall. The best designs are those that provide multiple roosting chambers that bats can move among.

### Materials

Bat houses can be made of a variety of types of wood, such as cedar, pine, and exterior plywood. Wood has good insulation properties, and often has surfaces rough enough for bats to climb. Weathered or rough-cut wood is ideal and may be colonized by bats sooner. Pressure treated wood, plastic and synthetic options are not recommended. Some woods (such as cedar) are naturally resistant to decay and may last longer than other options, or can be left untreated for a more natural product. Exterior plywood, while too smooth for bats to grip, has been highly successful for bat houses. This likely occurs because it is typically used when building larger structures, which are preferred by bats. Cement or composite materials may also have potential, but its success has rarely been reported and few designs are available that use this material.

### Landing Strip

Bats have a different approach to landing than birds. They cannot perch and typically require a drop before they can become airborne. However, they can cling to surfaces and climb using a single claw on either thumb. Their hind limbs have limited use for climbing, but are important when hanging upside down in their roosts. Bats need a vertical landing strip at least 10 cm (4") high and the width of the bat house. This strip is located below the entrance and should be free of obstructions that would impede flight.

### Roughening

The landing strip, and at least one side of each chamber (but ideally both) needs to be roughened to allow bats to grip the surface. Most wood is not rough enough on its own, but the wood can be scored by cutting grooves at least 0.8 mm (1/32") deep at 1.3 cm (1/2") intervals.

Other roughening methods may also work, such as using a nail rasp,

*Not all commercially available bat houses are suitable for bats in Alberta. Before you purchase a bat house, or build your own, ensure it meets minimum design requirements.*



Photo by Cory Olson

Bat houses need at least a 4" landing strip so bats can land and crawl inside.



Photo by Cory Olson

Horizontal grooves being cut using a table saw. These grooves allow bats to gain traction when climbing or resting.



# Bat House Design



Inner chambers should have 1.5" passage holes to allow bats to move among chambers.



View of the top of a two-chamber rocket box prior to installation of the roof. The pole slides into the bottom of the centre compartment.

router, or grinder. Some rough cut woods may be suitable for bats without the need for additional roughening. Nylon or fiberglass mesh (i.e., screen door fabric) has often been successfully used, but there are concerns that it may wear or separate from the wood, causing guano (poop) to accumulate or bats to become trapped.

## **Chamber Spacing**

Bats are great at crawling into tight spaces, and often prefer these locations because they are protected from predators and outside weather. The spacing of inner chambers should be 1.9 cm (3/4") apart. Spacing can be increased to 2.5 cm (1") if Big Brown Bats are the target species (but both species will readily use both 3/4" and 1" chamber spacing). Spacing much greater than 2.5 cm (1") should be avoided to prevent excess heat loss, predation, or colonization by wasps. For large bat houses, additional spacers near the centre of the house may be needed to guard against warping.

## **Colour and Finishing**

Darker colours will absorb more solar radiation and result in warmer roost temperatures. Bat houses stained black have been found to result in higher occupancy under some circumstances. However, black structures are also the most likely to overheat, potentially causing harm to bats. More research is needed to develop optimal colour recommendations. Lighter colours (such as medium brown) may be a better option for really hot locations, or for single-chambered bat houses, which are more prone to overheating. Consider installing multiple bat houses, of different colours, and report your results to the Alberta Community Bat Program. Naturally rot-resistant wood, such as cedar, may be left unstained. Unstained wood may have a coarser texture that bats can more easily grip, and avoiding stain or other chemical treatments will avoid strong odours that may repel bats. However, untreated wood will often decay at a much faster rate. Installing multiple bat houses and experimenting with different colours will help provide a diversity of roosting options that may be more beneficial to bats than using a single colour.

Avoid oil paints or other paints with strong odours, which typically release off-gassing chemicals and may deter or harm bats. Only low VOC (volatile organic compounds) stains should be used. An exterior grade non-toxic stain is ideal. The interior of the bat house should not be stained. All seams should be caulked (or glued) to reduce drafts and prevent water penetration.



# Bat House Installation

## Where and When Should I Install a Bat House?

Bat houses are best suited to areas where there is foraging and drinking water nearby, but where natural roosting habitat has been degraded or is no longer available. Trees and other vegetation provide foraging habitat, and open water provides sources of drinking water and supports rich insect communities. Bat houses can be installed at any time, but it is best to have them in place prior to the arrival of bats in the early spring. Ensure they are only installed in locations where they can remain standing for many years (or decades). **Avoid areas where bat guano will create aesthetic or sanitary problems, and do not install in locations where there would be a safety risk if bats fall to the ground** (pups may occasionally fall to the ground and die). Placing a flower bed or plant pot under a bat house will benefit plants and eliminate the need for cleanup.

## Solar Exposure

Bat houses tend to attract more bats when located in an area with plenty of sun, especially in colder regions of the province. Eastern exposures are good options, but bats may prefer warmer south or west facing aspects during colder periods of the year. Bat houses with only a northern exposure, or that are frequently shaded, will be too cold for most bats and are unlikely to receive much use, except by males. However, it is important that if a bat house is installed in a hot location that an alternative location is also available where they can move to escape the heat—a north or northeast facing aspect may be ideal on a hot day.

## Surrounding Habitat

In order for bats to locate and occupy a bat house, it needs to be in an area unobstructed by trees and other objects, especially in the flight space where bats enter and leave the house. However, some sort of wind break upwind from the roost may improve its suitability for bats. Installing the house in an area where bats are known to be active will increase the chances of them being occupied, but bats are good at finding bat houses when they are installed in suitable locations. Ideal areas include those near good foraging habitat (e.g., wetlands, waterbodies or watercourses) and known building roosts. Generally, bat houses placed far from suitable foraging habitat will have a lower chance of being used. As a general guideline, try to place bat houses within 400 m of open water. However, bats can fly long-distances, so sites farther than this distance may still be used.

## Predator Deterrence

Avoid installing houses near suitable perches for aerial predators (e.g.,



Photo by Cory Olson

Ensure bat houses are placed in locations where they will not need to be disturbed to accommodate building maintenance and renovations (e.g., painting and re-roofing). Also beware that large volumes of guano may accumulate below the bat house.



Photo by Cory Olson

Bat houses installed on the sunny side of a building tend to be among the most successful in Alberta. Install a bit lower than the top of the building to avoid the area shaded by the overhang of the building's roof.



# Bat House Installation



Photo by BC Community Bat Program

The pole supporting this rocket box is wrapped in tin to prevent predators from attacking bats.



Photo by Cory Olson

Bat houses have a long life, but will eventually become unsuitable (and possibly unsafe) for bats if not maintained.

## Do not scent your bat house with guano.

*Scenting with guano (poop) does not attract bats, and the transport of guano risks spreading disease.*

owls, crows, ravens, magpies). Try to maintain the bat house at least 6 m from tree branches, wires, or other perches. House cats are a major predator of bats and they are able to capture bats midflight. Avoid installing the bat house in a location where cats will have access to emerging bats. A band of sheet metal or smooth plastic 45 to 60 cm wide wrapped around poles or trees directly below the bat house will prevent climbing predators (e.g., cats, squirrels, weasels, raccoons) from disturbing the colony.

## Mounting

Bat houses need to be mounted at least 3 to 4 m (10 to 13') above the ground. The height is measured from the top of any ground clutter (e.g., shrubs, grasses, etc.) to the roost entrance. There are three common mounting options: attach to the side of a building; attach to a pole/post; or install on the trunk of an open tree. See Figures 2 to 4 for a few attachment options.

Trees may be suitable mounting structures provided: (1) the tree has an unobstructed trunk, allowing sunlight to reach the structure and for bats to exit into open flight space; (2) the tree is structurally sound so that it won't fall over in the foreseeable future, and (3) there are no perches nearby that can be used by predators. Trees such as poplar or aspen, which often have an unobstructed trunk, may be acceptable options. Conifers may be unsuitable because the lower branches often obstruct flight and shade the bat house.

The best mounting option may be to attach to the side of a building (the east side is a good option as it avoids the hot afternoon sun), or to a sturdy pole/post. **Houses attached to the side of a building appear to be more successful than pole mounted options in Alberta, but more reports are needed to evaluate this trend.** Single chamber designs should only be installed on a building (or possibly a tree), because they will dissipate too much heat when pole-mounted. Bat houses installed back-to-back on a pole have been successful, and will provide a greater range of conditions for the bats. Rocket boxes must be installed using a pole or post.

Areas with a lot of artificial lighting should be avoided (this includes on utility poles with overhead lights). Non-owned utility poles should not be used because the bat house may interfere with utility workers.

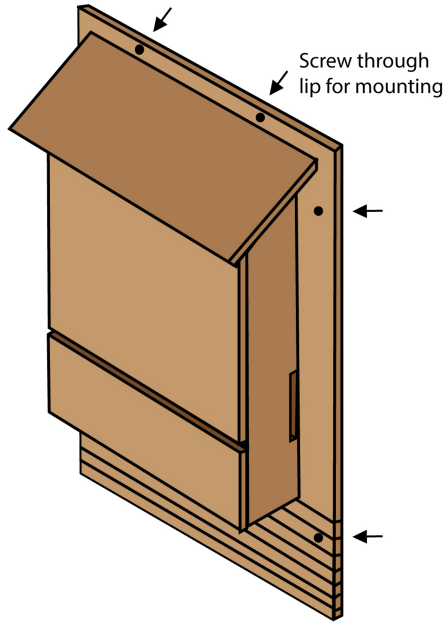
## Maintenance

Bats don't build nests, so annual maintenance may not be required. However, roosts should be inspected to make sure wasp nests have not been built in the bat house, and to fix any leaks or structural defects. Maintenance should only occur when bats are absent.

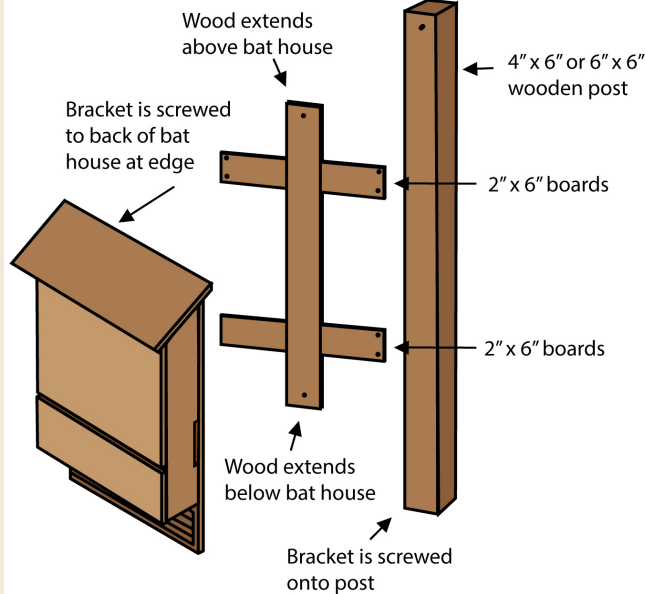


# Bat House Installation

## LIPS OF A BAT HOUSE

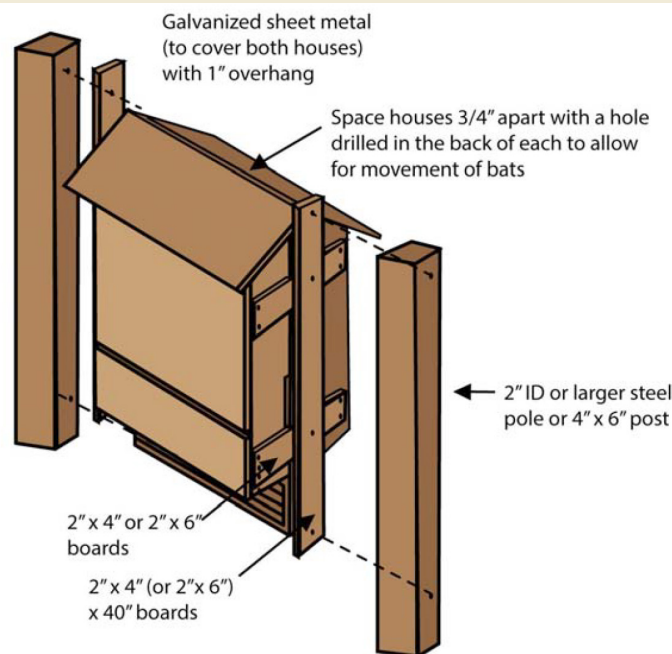


## MOUNTING BRACKET



**FIGURE 2.** Two mounting options for a bat house. An oversized back board that allows lips for screws is often ideal for mounting to a building (left). Baskets are a good option for pole or tree mounted bat houses (right).

*Diagram courtesy of Community Bat Programs of BC*

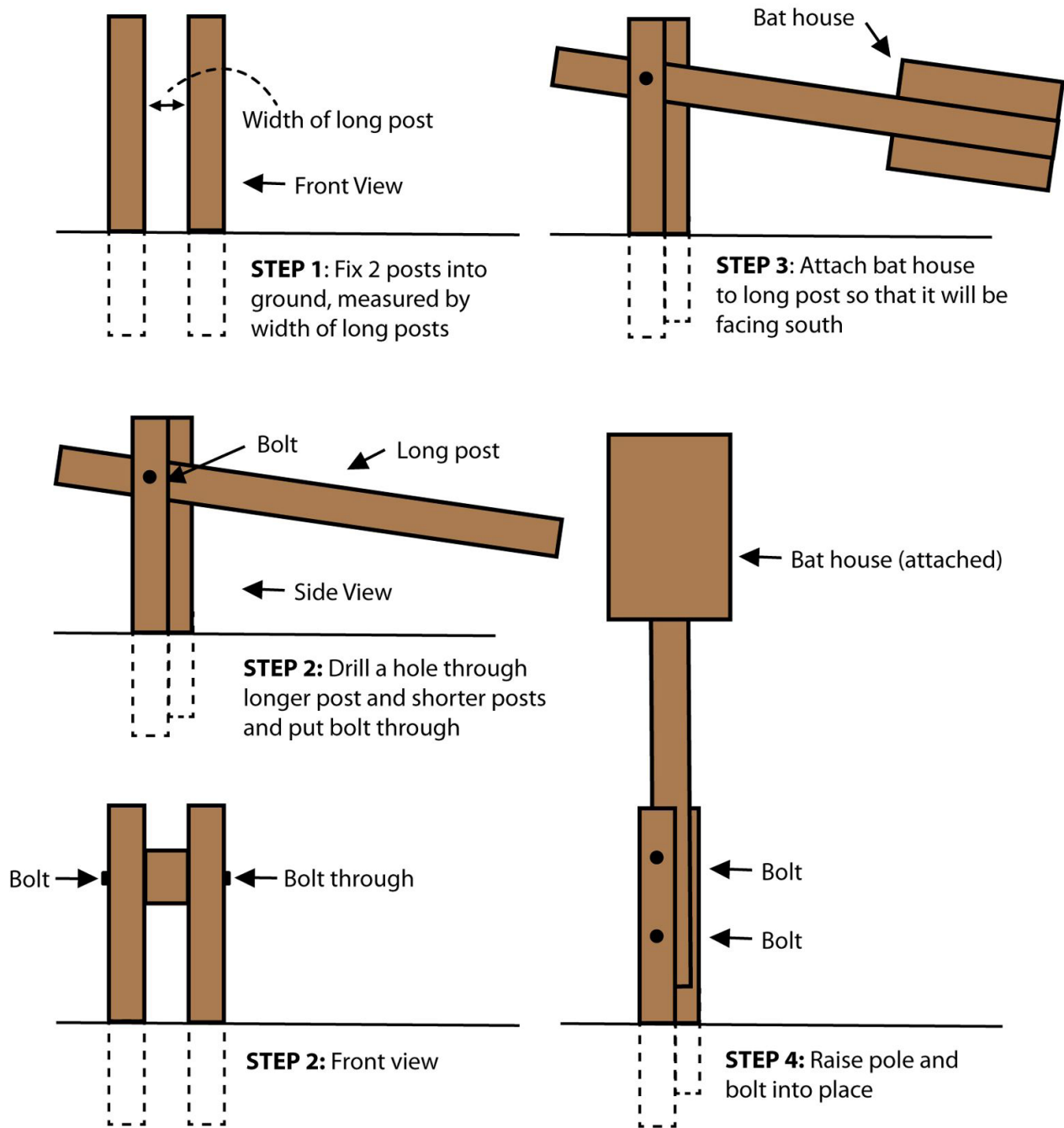


**FIGURE 3.** Back-to-back mounting of two BCI 4-chamber nursery houses.

*Diagram courtesy of Community Bat Programs of BC*

# Bat House Installation

## BAT HOUSE: POST INSTALLATION



**FIGURE 4.** Design for a pole-mounted bat house setup with pivot to allow easier raising and lowering. Can be used with either multi-chambered bat houses or rocket box.

*Diagram courtesy of Community Bat Programs of BC.*



# Bat House Installation

## ***Design Checklist***

- ☑ At least 61 cm (24") tall and 43 cm (17") wide for traditional bat houses. For rocket boxes, the height should be at least 0.9 m (3') tall.
- ☑ Contains multiple chambers (ideally at least 3 for regular bat houses; 2 for rocket-boxes).
- ☑ Individual chambers are spaced 1.9 cm (0.75") - 2.5 cm (1") apart.
- ☑ Chambers have passages that allow bats to move between chambers without exiting—such as by drilling 3.8 cm (1.5") circular holes.
- ☑ A stain is applied to the exterior, or a rot resistant wood (cedar) is used (do not stain the interior).
- ☑ Stain has low-toxicity and low VOC or is left untreated.
- ☑ Has a 10 cm (4") vertical platform for landing.
- ☑ Does NOT have perches designed to allow birds to land (bats can't use them, but their predators can).
- ☑ Surfaces that bats will contact are roughened, such as by cutting horizontal grooves at 1.3 cm (0.5") intervals.
- ☑ All seams are caulked or glued to prevent unnecessary heat loss or moisture penetration.
- ☑ Vents are included and are located in the lower half of the structure.
- ☑ Guano is allowed to fall freely to the ground below the bat house (i.e., does not accumulate in the structure).

## ***Installation Checklist***

- ☑ Multiple bat houses are installed with at least one offering a cooler location (shaded or north exposure) and others offering warmer locations (e.g., eastern exposure).
- ☑ Located in an area somewhat sheltered from strong winds, which may cause excessive cooling.
- ☑ There is a clear path from the bottom of the bat house into open flight space.
- ☑ Installed at least 3 m above the ground (measured from bottom of bat house to nearest obstruction).
- ☑ Installed away from artificial lighting (do not attach to a light post).
- ☑ Location will not expose bats to predators; located out of reach of cats and away from perches used by predatory birds (owls, magpies, etc.).
- ☑ Installed in a location where guano falling to the ground will not be a nuisance or public health concern.
- ☑ Located away from areas with high human activity, such that children or the public are unlikely to come into contact with bats that may occasionally fall from the structure.
- ☑ In an area where vandalism or deliberate disturbance is unlikely to be an issue (such as from someone poking at bats with a stick).
- ☑ Installed well away from sources of unintended disturbance (e.g., vehicle exhaust, fire/barbecue smoke, noise, light, etc.).
- ☑ Location will be available for the foreseeable future (>10 years).
- ☑ The bat house is in a location where it will not need to be removed between March - October to accommodate renovations or maintenance of buildings (such as painting or re-roofing).

# What Species Use Bat Houses?



Big brown bat (*Eptesicus fuscus*)



Little Brown Myotis (*Myotis lucifugus*)



Comparison of fecal pellet size between Big Brown Bats and Little Brown Myotis. Squares: 2 mm (small) / 1 cm (large).

## What species will use my bat house?

Little Brown Myotis (also called Little Brown Bats) and Big Brown Bats are both common around human residences, and are the most likely species to use bat houses in Alberta. These are also the two most likely species to roost in buildings. In areas without buildings or bat houses, they commonly roost in trees cavities or, less often, rock-crevices. Although both species have potential to be found in all areas of the province, Little Brown Myotis are especially common near lakes and other aquatic habitats.

Preliminary evidence from the Alberta Community Bat Program's citizen science project indicates that Little Brown Myotis are the most likely to be reported using bat houses or buildings, followed by a much lower frequency of Big Brown Bats. Silver-haired Bats have also been reported, although it is unclear whether they use bat houses as maternity colonies.

Other Myotis species (e.g., Long-legged Myotis, Long-eared Myotis, Western Small-footed Myotis, Northern Myotis) may also use bat houses, but reports are currently lacking.

## Identifying Species

Bats are difficult to tell apart without close examination and extensive training. Even experts can have difficulty with some species groups. Big Brown Bats are over twice the size of Little Brown Bats, and their presence can often be determined by comparing the size of the guano below the roost (see panel image). However, both these species are very small, and are often misidentified by those with little experience identifying bats.

## New genetic techniques allow us to determine species by having guano samples analysed at a specialized laboratory.

The Alberta Community Bat Program can facilitate that analysis, you just need to send us a tablespoon of guano from a single roost (along with a simple report). Easy-to-follow protocols can be found on the [albertabats.ca](http://albertabats.ca) website (see [Citizen Science](#)).



# Citizen Science

## ***How to Know if a Bat House Is Being Used***

To determine if a bat house is being occupied, you can briefly shine a light into the bat house during the day to see if any bats are sleeping inside. However, bats will likely be at the very top, clustered, and difficult to see. A better method is to place something light coloured (e.g., cloth, board) on the ground directly below the entrance, and see if bat droppings (guano) accumulate on the surface. Guano is dark coloured (usually black), about the size and shape of large rice, and will consist of ground up insect parts. Another method is to watch the house for about an hour starting just before sunset to observe bats exiting the structure.

Bats are capable of regularly moving among roosts throughout the breeding season. As a result, roost use may vary throughout the year. Repeated observations during the breeding period will be required to determine if the roost is being used. It may take a few years for bats to begin using a bat house, so continued monitoring is encouraged.

## ***Citizen Science and Reporting Roost Observations***

There are too few reports of bat house results in Alberta to make effective recommendations regarding how to design and locate bat houses in the province. To address this deficiency, the Alberta Community Bat Program has established an online form that participants can fill out to submit their results. Your results can make a valuable contribution to bat conservation in Alberta. Reports of unsuccessful bat houses are just as important as reports of successful bat houses. Visit [www.albertabats.ca/citizenscience](http://www.albertabats.ca/citizenscience) to find out more about the project. Consider installing two bat houses of different designs in the same area (with similar sun exposure)—or the same design in areas with different sun exposure— and then let us know which is more successful. We can use this information to make more informed recommendations regarding bat house design and installation.

If you find dead bats near or below your bat house, let us know about it. Although low-levels of mortality are normal, finding multiple dead bats may suggest the bat house design is causing more harm than good to the local bat population.



Little Brown Myotis guano



Most bat species can be identified to species using a relatively inexpensive genetic test. The Alberta Community Bat Program may be able to have your sample tested free of charge if a roost report is submitted to the citizen science program. See [www.albertabats.ca/citizenscience](http://www.albertabats.ca/citizenscience) for more information.

# Other Resources

## RESOURCES

### Community Bat Programs

- Alberta Community Bat Program: [www.albertabats.ca](http://www.albertabats.ca)
  - Documents, posters, and other resources: [www.albertabats.ca/resources](http://www.albertabats.ca/resources)
  - Bat house recommendations: [www.albertabats.ca/bathouses](http://www.albertabats.ca/bathouses)
  - Events: [www.albertabats.ca/events](http://www.albertabats.ca/events)
  - Bat Rehabilitation Centres: [www.albertabats.ca/foundabat](http://www.albertabats.ca/foundabat)
  - Facebook: [www.facebook.com/albertabats](https://www.facebook.com/albertabats)
  - Twitter: [twitter.com/albertabats](https://twitter.com/albertabats)
  - Instagram: [www.instagram.com/abcommunitybatprogram](https://www.instagram.com/abcommunitybatprogram)
- WCS Canada's BatCaver Program: [www.batcaver.org](http://www.batcaver.org)
- Community Bat Programs of BC: [www.bcbats.ca](http://www.bcbats.ca)
- Neighbourhood Batwatch: [batwatch.ca](http://batwatch.ca)

### Removing a single bat from the living space

- Bat Conservation International - there's a bat in my house: [www.batcon.org/index.php/resources/for-specific-issues/bats-in-buildings/there-s-a-bat-in-my-house](http://www.batcon.org/index.php/resources/for-specific-issues/bats-in-buildings/there-s-a-bat-in-my-house)

### Information about White-nose Syndrome

- Alberta Environment and Parks: [www.alberta.ca/white-nose-syndrome.aspx?ca=wns\\_regional\\_outlook.php](http://www.alberta.ca/white-nose-syndrome.aspx?ca=wns_regional_outlook.php)
- US White-nose Syndrome website: [whitenosesyndrome.org](http://whitenosesyndrome.org)

### Rabies and other health concerns

- Alberta Environment and Parks - Wildlife Diseases: [www.alberta.ca/bats-and-rabies-in-alberta.aspx](http://www.alberta.ca/bats-and-rabies-in-alberta.aspx)

### Other Bat House Recommendations

- Building Homes for Bats: A Guide for Bat houses in BC: [http://www.bcbats.ca/attachments/Bat\\_houses\\_in\\_BC\\_2015.pdf](http://www.bcbats.ca/attachments/Bat_houses_in_BC_2015.pdf)



Photo by Juliet Craig



Photo by Erica Konrad







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