

# How to Build and Install Barn Owl Nest Boxes



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**FRASER VALLEY  
CONSERVANCY**

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## Introduction

This document outlines how to build and install barn owl nest boxes in Southern British Columbia, Canada.

### Barn owl biology

Canada is the northern limit of the barn owls' range in North America, and they are only known to breed in southwestern B.C. Barn owls are most common in the Lower Mainland and in the Fraser Valley east to Hope. On Vancouver Island barn owls have been documented from Sooke to Campbell River, including the Gulf Islands, with most confirmed sightings from the Cowichan Valley. In the interior B.C., breeding has been documented in Osoyoos, Kelowna, and the Kootenay Valley as far east as Creston. The species is accidental in other parts of B.C.

Barn owls are primarily found in low elevation open grassland habitats such as grasslands, meadows, marshes, and agricultural landscapes. They nest in old wooden barns and tree cavities. However, they will easily take to nest boxes installed in or mounted on barns, in addition to boxes placed on poles. Field Voles are the Barn Owls' main prey, but barn owls also eat, mice, shrews, rats, moles, and starlings.

### Barn owls as rodent control candidates

Barn owls are excellent rodent hunters, especially field voles, and they can be implemented as part of an Integrated Pest Management Program (IPM).

- A nesting barn owl pair and their owlets eat 2000 or more small mammals per year.
- Farmers have reported reduced rat and vole problems on their farms after a breeding barn owl pair has taken residence on their farm.
- Barn owls will hunt within a 1 km radius when food is abundant. They are not territorial so nest boxes can be placed close to each other ~ 100 meters apart.

- Some farmers have noted fewer pigeons and starlings in buildings occupied by barn owls.

### Considerations and risks

Barn owls and other predators are at risk of being secondary poisoned by rats and rodents that have eaten rodenticide. This is a major issue in British Columbia and annually owls have been found to have died from secondary rodenticide poisoning. If you are installing a barn owl nest box avoid the use of rodenticides. Consider preventive measures such as removal of potential food sources and rodentproof structures.

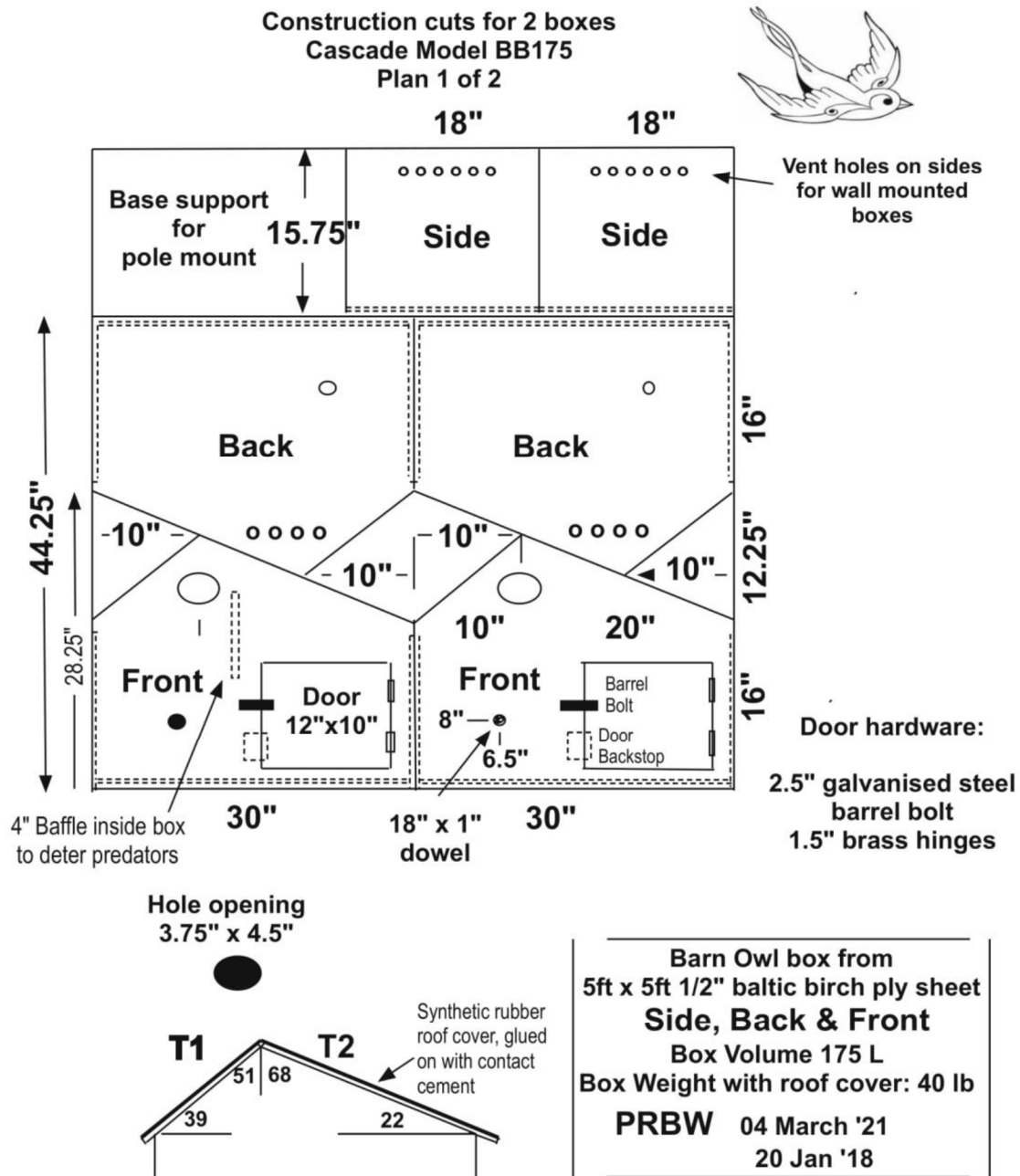
Barn owls usually fly low when hunting and are vulnerable to getting hit by vehicles and trucks when crossing roads. Avoid installing nest boxes within 500 m of major highways.

### Cascade outdoor box

The BB175 box is made using ½ Baltic birch plywood and should be painted with a waterproof stain/paint. The design below is for two boxes and requires two sheet of Baltic birch plywood. The group also makes the boxes at material cost only, if interested or if you have any questions contact Peter Ward: [prbward@gmail.com](mailto:prbward@gmail.com).



## How to Build and Install Barn Owl Nest Boxes



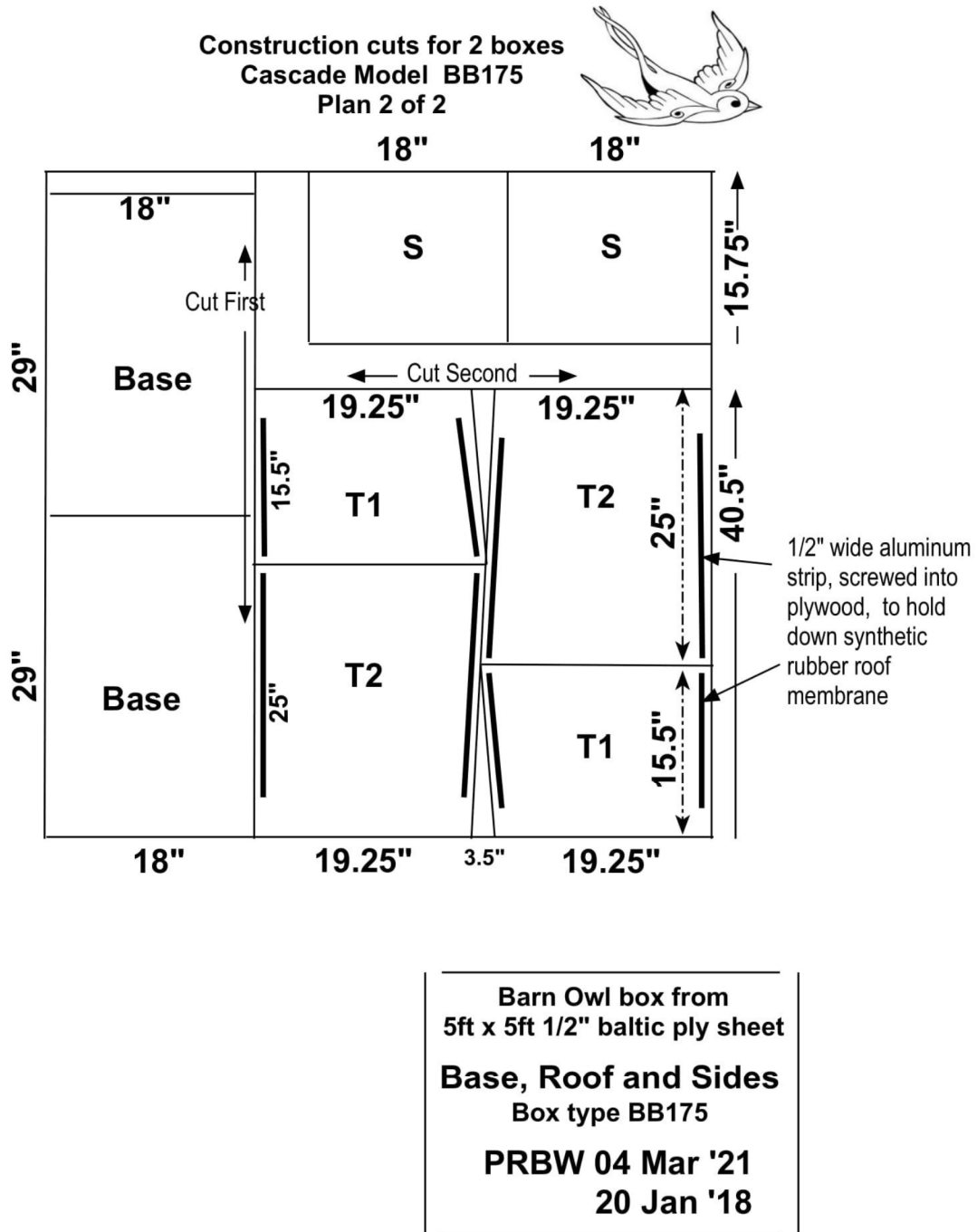


Figure 1: Cascade outdoor box design.

## Wrap-around deck for BB175 outdoor nest box

All barn owl nest boxes need to have a deck below the entrance hole to provide safety for the young owlets when they emerge from the nest box. This also reduces the risk of them falling to the ground before they can fly. Adult barn owls will not feed owlets that have fallen to the ground.

BB175 30X19 Balconies 2020 - Back to the Drawing Board - 2D CAD

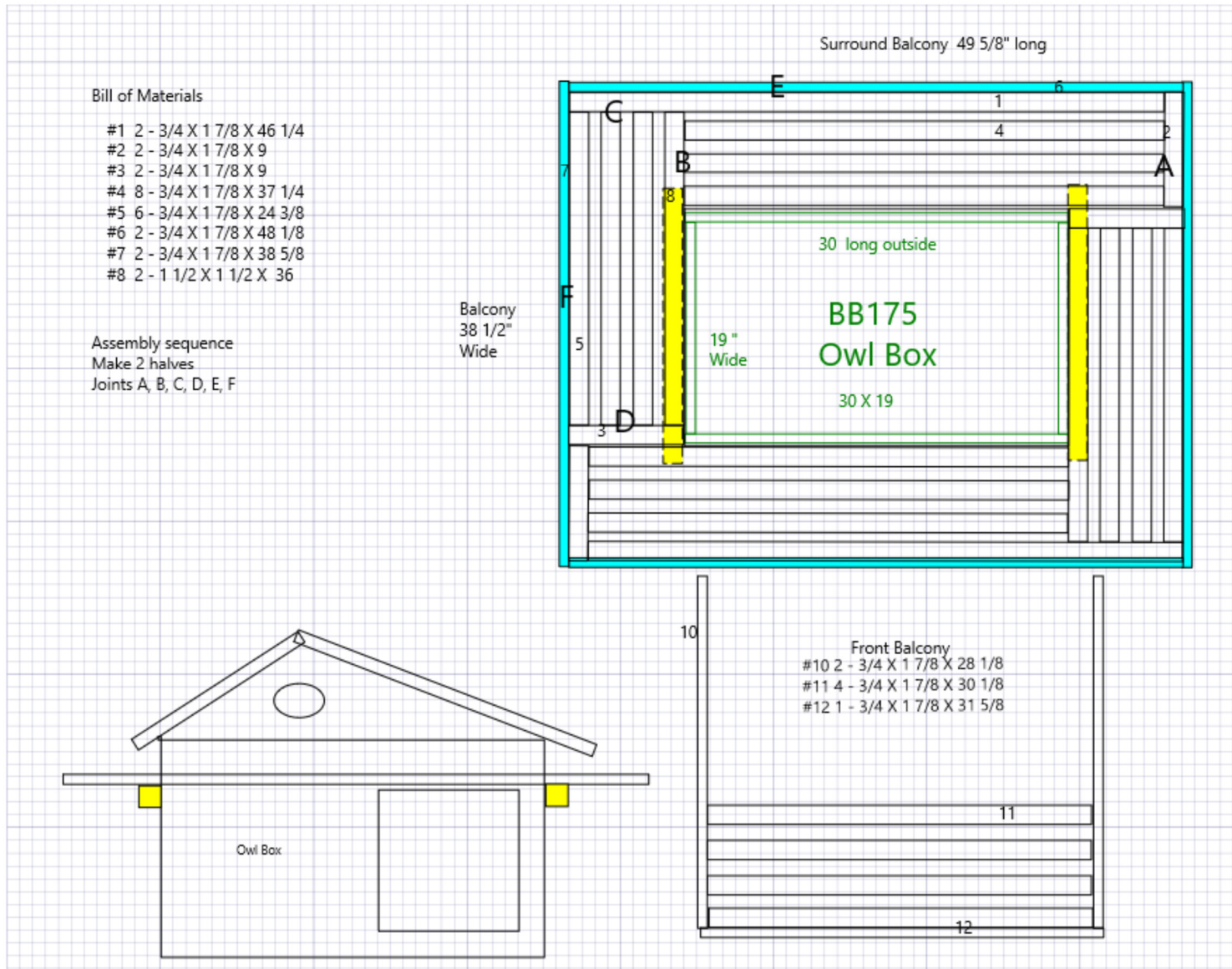


Figure 2: Cascade outdoor box deck design.

## How to Build and Install Barn Owl Nest Boxes

There is a 1-inch dowel inside the box for the owls to perch on and a small vertical baffle 4 by 2-inch piece of plywood to the right of the hole, that provides protection from predators. The baffle prevents potential predators such as crows, eagles, or larger owls from seeing directly into the nesting area (the right side of the box), and animals are hesitant to stick their heads in further i.e., being vulnerable if they cannot see around a corner. The roof is covered with a synthetic rubber membrane, as used by the building industry for flat roofs. In the event that summer temperatures exceed 40° C, we recommend painting the roof with a white elastomeric paint, three coats, is the most effective way of reducing the temperature in the boxes. Alternatively white metal sheeting on the roof will reduce internal box temperatures and prevent the owlets from overheating.

The entrance hole on the box is purposely made small (3.75\*4.5 inches/9.5\*11.5 cm) to ensure that larger owls such as great horned and barred owls cannot enter the box and predate on the barn owls.

For pole mounting, use a 14-16 ft long 6x6 treated post, buried 3.5-4 feet in the ground. The hole is pre-dug using an auger with a 12-inch bit including an extension. Place a back support in the hole so that the post is directed down to the bottom (Fig 3). The box is attached to the pole, and carefully lifted with a tractor until it is at a steep angle and can slide into the pre-dug hole (Fig 4).

The wrap around deck is fragile, so if you are worried that the install i.e., lifting the pole with the tractor might damage the deck you can also attach it to the box after a couple of weeks when the pole and cement has settled. Install a wrap around metal sheet on the pole to prevent racoons and other animals from climbing the pole and accessing the box. Once the pole is in place pack around it with sand and cement (several bags are needed) and leave the pole with temporary side supports until the cement is cured (Fig 5). Barn owls prefer the box to be out in the open, so boxes can be installed along edges of fields with the entrance hole away from prevailing strong winds (Fig 6).

## How to Build and Install Barn Owl Nest Boxes



*Figure 3: Place a back support with a vertical piece of wood in the hole to help direct the post down.*



## How to Build and Install Barn Owl Nest Boxes



*Figure 4: Post with box attached is carefully lifted with a tractor until the post slides into the hole.*



*Figure 5: Place support brackets around the base of the pole for about a month to ensure the pole with cement settles.*



*Figure 6: Barn owl boxes should be placed out in the open ideally along the edges of fields where you are experiencing rodent problems. The entrance hole should be directed away from prevailing winds.*

### Cascade indoor box and front deck

Indoor boxes can be placed inside barns, silos, riding arenas or taller structures. They should be at least 4-5 meters above ground. They can be placed on rafters or attached to supporting beams (Fig 7).





*Figure 7: Indoor barn owl boxes can be placed on rafters or attached to supporting beams a minimum of 4-5 m above ground.*

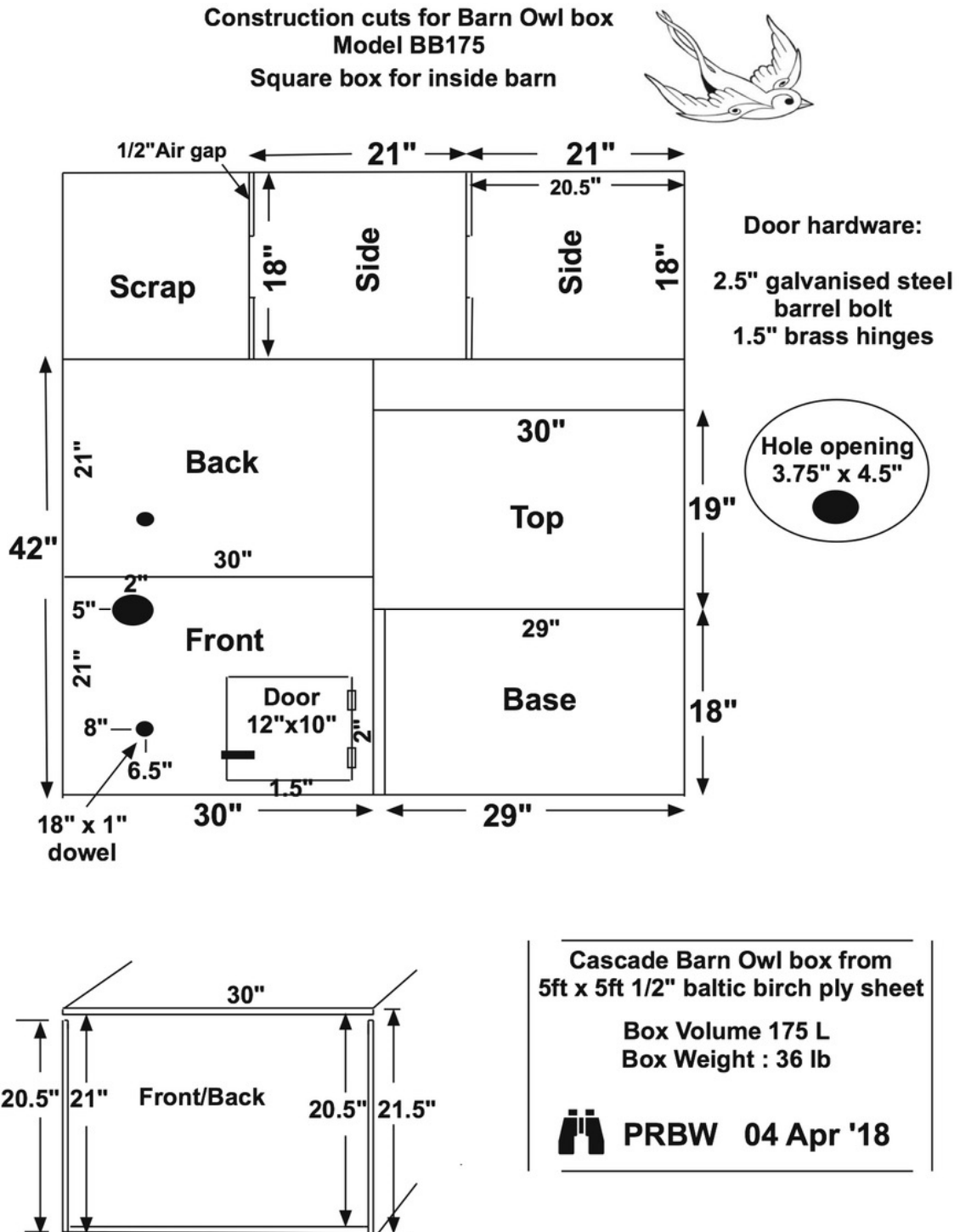


Figure 8: Cascade indoor box design.

### Front deck for indoor nest box

A deck should always be installed on a barn owl box as it provides the owlets with a safe area when they start emerging from the nest box. At this point the owlets are not yet proficient flyers, but the platform provides them with an area they can spread their wings and play and become more confident. The deck also reduces the risk of the owlets falling out of the nest box prematurely. Owlets on the ground will not be feed by the parents and are in most cases not able to make it back up to the nest box.

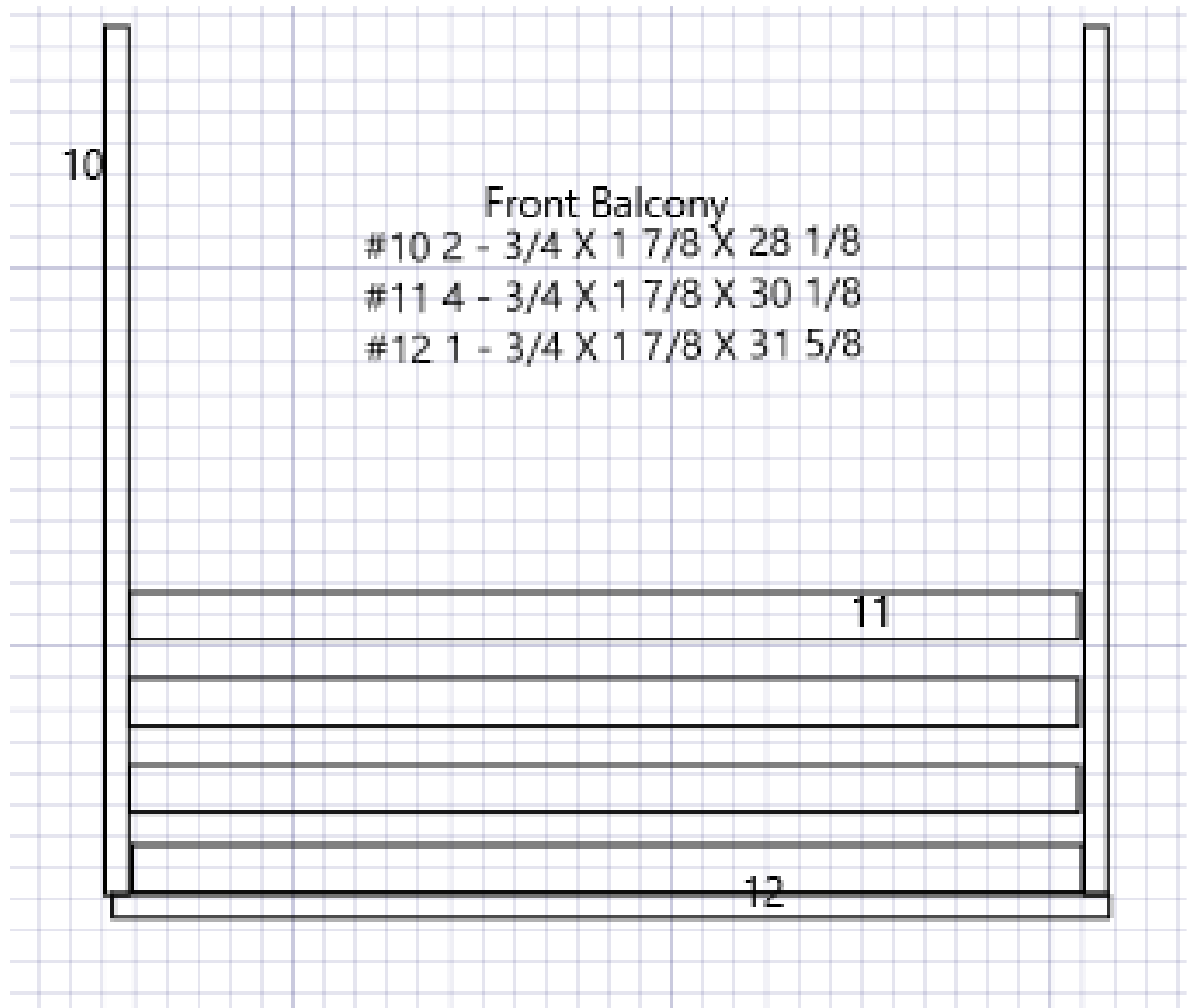


Figure 9: Cascade indoor front deck design.



## Nest box maintenance

Nest boxes that are actively used need to be cleaned every 1-2 years. This should be done outside the main breeding season, so you want to clean the box sometime between late September and early February. Always wear a mask and gloves when cleaning out the nest box and leave about an inch of pellets in the box, as this acts as nesting material.

To minimize the disturbance on the barn owls, in case they are in the nest box. Boxes should only be checked and cleaned at dusk onwards as this will allow the barn owls to flush from the box without the risk of being harassed by daytime raptors (eagles, red-tailed hawks) and crows, sometimes these interactions can unfortunately be fatal for the barn owl.

For more information see: [Farming with barn owls in BC](#)