HOW TO BUILD A COLD FRAME

Cold frames are a great way to extend your gardening season, allowing you to protect your plants from frost and grow in the colder weather months.

A cold frame is a transparent outdoor frame that protects plants from the damaging effects of frost and cold weather while still letting sunlight in. This allows your plants to get natural sunlight and extra warmth. In most regions, a cold frame can be used effectively to grow winter seedlings and crops.

By protecting your produce from frost--- you can extend the joy of harvesting into the winter and start sowing seeds a couple of months early. That's an extra 4 delicious months!

Which plants grow well in a late summer/ fall planted cold frame

Cold frames are best used for crops that can tolerate cold temperatures and don't require pollinators. Here is a list of some great options for your cold frames:

- Lettuce
- Spinach
- Kale
- Swiss Chard
- Cilantro
- Parsley
- Beets
- Radishes
- Bok Choy
- Cabbage, broccoli, cauliflower (any brassicas)

When to plant in the cold frame

Plants will *no longer grow* when they have less than 10 hours a day of sunlight. This is referred to as the *Persephone Period*.

In the Niagara Region (43.086 °N, 79.0849 °W) the last 10 hour day is Nov 5, 2020.

Have a look at your seed packages and take note of how long it takes for each plant to grow from seed to harvest. E.g. radishes only take 30 days. Add about 10-14 more days to account for the shorter day length.

So, if you're planting crops that take 60 days to mature and add a 14 day buffer -- You'll want to plant your cold frames in mid August.

After the active growing phase is over, from Nov 5th you'll basically have a living fridge to harvest from!

In Niagara the 10 hour + days return on Feb 6, 2021. This means that you can sow your spring seeds a few days before Feb 6 and you will be gifted with the return of the sun and an early spring harvest.

To check out hours of daylight for your latitude use this link:
http://astro.unl.edu/classaction/animations/coordsmotion/daylighthoursexplorer.swf

Where to place the cold frame

Make sure your cold frame bed has full sun access. You'll want to orient the slope of the top of the cold frame towards the sun (south) to optimize the day length as much as possible.

S↔N

Ensuring good air flow

You'll want to keep the lid off or propped open from summer up to the first frost otherwise it will get too hot in there. Right before the frost comes you can close the lid and latch it. Even in the winter it can get quite sunny and warm so you may want to occasionally vent your 'living fridge' to keep it cool during the day. If you do this make sure the lid gets closed before dark or they will freeze at night.

WIND! If you leave your cold frame open and unsecured the wind will most definitely blow back the lid and rip out the hinges. Don't underestimate its power. Always secure your lid if you are leaving it unattended.

Watering your cold frame

Go ahead and water as needed for the summer and into the fall. You'll find without the heat of the day you won't need to water at all moving into mid-late October. Once the frost comes--- there is likely enough water already in the bed to keep your produce moist and happy. So no need to water in the winter. Another fun fact is that since the lid is closed and the soil isn't contending with rain, you won't have that dirty backsplash on your vegetables which makes for easy cleaning.

HOW TO BUILD A COLD FRAME (instructions are for a 4 ft x 8 ft raised bed)

MATERIALS

Base frame

- 3 x 8 ft Long 2x12 pine or spruce boards
- 2 x 4 ft Long 2x12 pine or spruce boards
- 1 x 4 ft Long 2x12 pine or spruce board (cut diagonally lengthwise from corner to corner) (see Fig 4)
- 2 x 1 ft L 2x4 pine or spruce (inside brackets to secure cold frame 2x12s)
- 4 x 1 ½ ft L 1x2 pine or spruce (outside brackets or “feet” to secure to raised bed frame)

Top lid

- 2 x 4 ft Long 1x2 boards (pine or spruce framing lumber)
- 2 x 8 ft Long 1x3 boards
- 3 x (about 3 ½ ft Long) 1x2 boards [measure and cut 1 at a time]
- 4 ft W x 8 ft L greenhouse-grade plastic wrap, or vapor barrier (cheaper)

Hardware and Tools

- 3 x hinge and screw sets
- 1 handle
- 3” deck screws
- 3 ½” deck screws
- 2” deck screws
- 1 ¼” deck screws
- ¾” screws (for plates)
- 4 x ‘L’ plates/ brackets
- 6 x ‘T’ plates/ brackets
- staple gun and staples (for plastic)
- drill and bits (Roberts (square), Phillips (Cross), and driver bit)
- 1 tube Silicone caulking (transparent, waterproof)
- measuring tape
- A skill saw (circular saw)

Tip 1: When measuring your bed you are determining the length of lumber you need to buy. So, be sure to put the end of the tape measure (where the metal tip is) at the end of the pieces of lumber (not necessarily at the outer end of the bed). (Fig 1.A)

Fig 1.A

Fig 1.B

Be sure to record the measurement at the end of the board as opposed to the corner of the bed. Example: Standard lumber sizes are 6 ft, 8 ft, 10 ft, and 12 ft (Fig 1.B)

Fig 1. C

This measurement of the 4 ft side is end-to-end of both the lumber and the outer end of the bed. (Fig 1.C)

Tip 2: A 2 x 4 isn't really 2 in by 4 in, nor is a 1 x 3 1 in by 3 in. It's slightly less. They were measured when they were first cut and they are now shrunken a bit since they are dry. So you can't necessarily predict your lengths for pieces like the 3 vertical cross supports for the lid. The good news is the lengths of lumber are what they say they are in the lumber yard!

STEP BY STEP INSTRUCTIONS:

Step 1: Place your 8 ft long 2 x 12 up along the back of the bed (north side of bed). Then place a 4 ft long 2 x 12 along either side of the bed so they meet at the NE or NW corner. Use 3 x 3-inch screws to attach the boards together making the back corner of the frame. Repeat for the other 4 ft long 2 x 12 on the other side. (Fig 2)

Fig 2

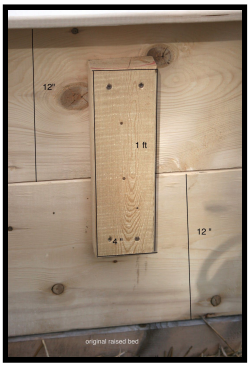
Step 2: Place the second 8 ft long 2 x 12 board on the front side (South side) of the bed and screw in 3 x 3 inch screws on each end to secure it to the 4 ft. long sides. (Fig 3)

Fig 3

Step 3: Place the 3rd 8 ft long 2 x 12 board on top of the one on the North side (Fig 2). Then place the 2 Right angled 4 ft long boards along the sides, with the tallest part facing the north (back), and sloping downwards to the south (front). Secure with 3 x 3” deck screws into the 2 x 12s (Fig 2). Secure the front end (South) by drilling a 2 “ screw straight down into the 2 x 12 below it (Fig 4).

Fig 4

Step 4: To secure the 2 layers of frame together, bracket with 1 ft long 2 x 4 pieces on the inside of the frame using 3” screws. (Fig 5). 2 of these along the back should do it.



. Fig 5

Step 5: Secure the frame to the original raised bed with the 4 x 1 ½ ft long 1” x 2” pieces using 2 inch screws. (Fig 4).

Building the Lid:

Step 1: On a flat surface lay out the perimeter (rectangle) of your lid. 2 x 8 ft long 1” x 3” s horizontally and 2 x 4 ft long 1” x 2” s vertically. Secure corners with L plates using ¾” screws (Fig 6) Always drill a pilot hole before putting your screws in! (Fig 7)

Fig 6

Step 2: Mark the 3 vertical supports using a pencil. Make precise cuts. Secure with a T bracket to the frame of the lid using ¾” screws. (Fig 6, Fig 8)


Fig 7

Fig 8

Step 3: For additional support you can drill in a 3 ½ " screw into the joints. DON'T FORGET TO DRILL A PILOT HOLE FIRST (you will need a really long drill bit for this). (Fig 9)

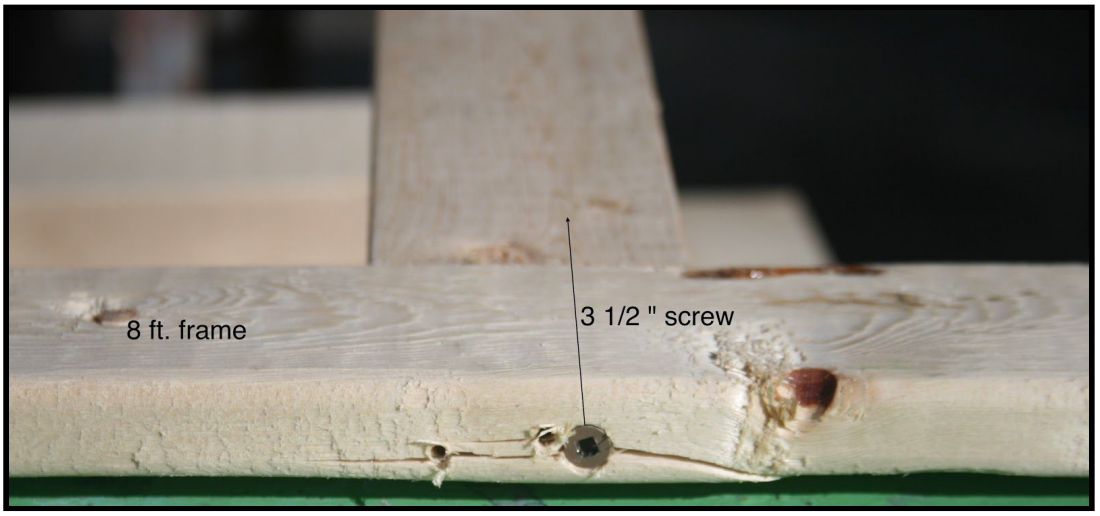


Fig 9

Step 4: Lay out plastic cover over the outside of your lid frame. Staple every 2-4 inches to secure in place. (note: the L and T plates are on the inside). (Fig 11)

Fig 11

Step 5: Screw in locking clasp to the middle/ front of the lid using hardware provided. (Fig 12)

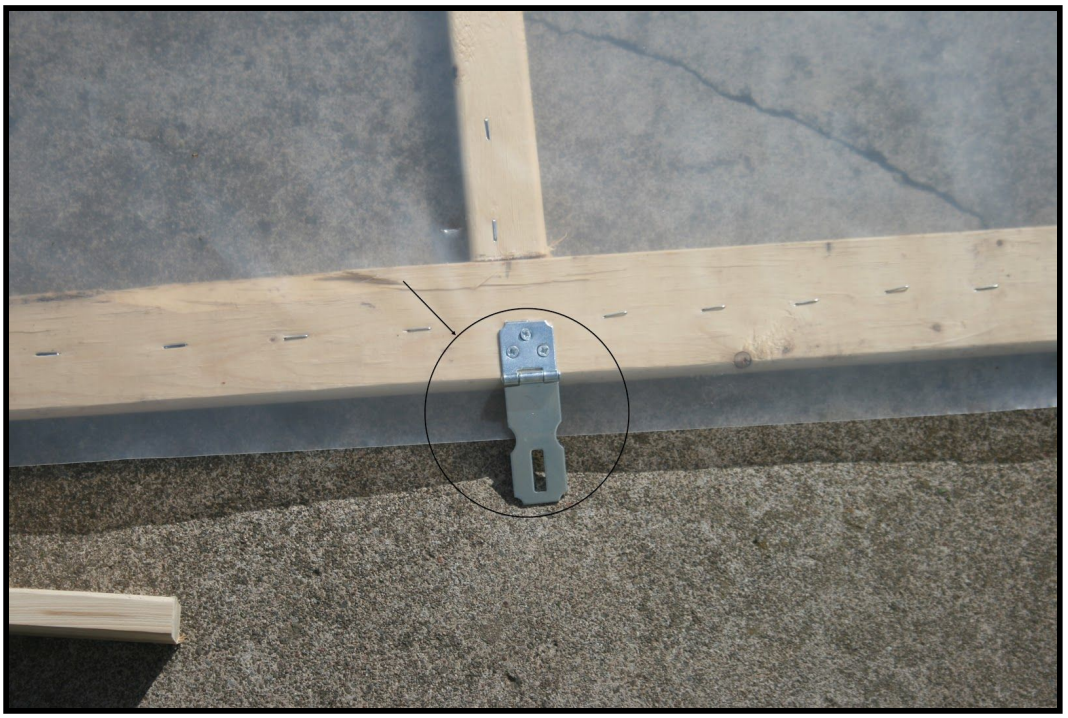


Fig 12

Step 6: Apply a strip of silicone along the staples to protect them from water. Lay out 8 ft long 1” x 2” framing lumber over top and bottom. Lay out 4 ft long 1” x 2” framing lumber over the sides. Pilot hole first and screw frame into place using 1 ¼” long screws. (Fig 13, Fig 14)

Fig 13

Fig 14

Step 7: Lay out your 3 vertical 1 x 2s one at a time. Mark it- cut it- pilot hole- screw it. Three times (Fig 14).


Fig 15

Step 8: Hold lid in place to determine where the 3 hinges will go. Pilot hole your hinges. (Fig 15) Use screws that came with hinges to secure in place.

Fig 16

Step 9: Secure the other half of the locking clasp to the front of the frame. (Fig 16) You can also add a handle if you want.

Happy growing!

From the Links for Greener Learning Team