

Purlin Installation

Materials: Purlin pieces, cross-connector clamps, drill, ¼" self-tapping screws, hack saw, measuring tape, plumb bob, marker, duct tape

Step 1: Start at one end and work your way down the tunnel

Step 2: Lay out a measuring tape between the ground posts

Step 3: Suspend a plumb bob from the bow, center at 6'

Step 4: Attach cross-connector clamp 6' on center

Clamp installed
on end bow,
with C channel
(see later slides)



Purlin Installation

Step 5: Slide first purlin through clamp so that the swedged end sticks out beyond the end wall and the far end falls **between** two bows.

Step 6: Attach a clamp 6' on center to the bow closest to far end.

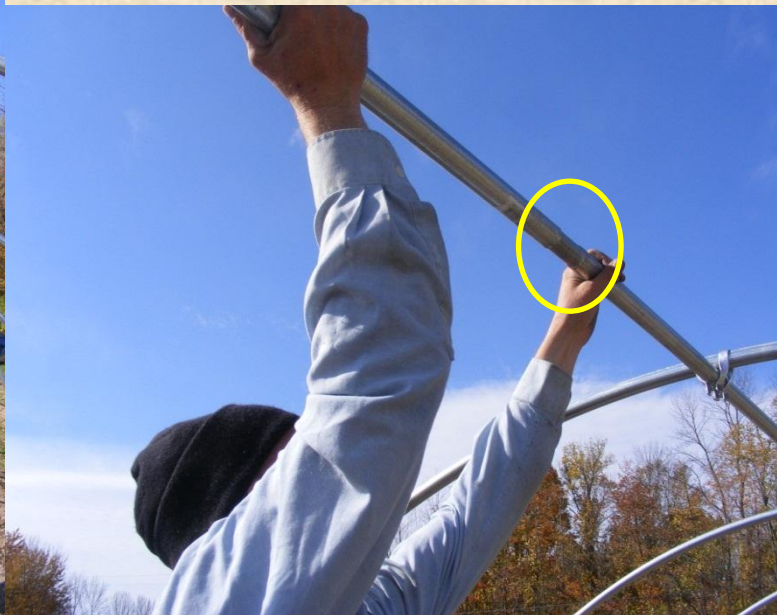
Step 7: Slide the swedged end of the next piece into the free-standing purlin. Attach clamps at each end of the new piece.

Step 8: Repeat **Steps 3-7** until you've reached the far end.

Step 5, demonstrated on an inner bow



Step 7: Connect the pieces between bows



Step 8: Install remaining pieces



Purlin Installation

Step 9: Go back and clamp purlin to all bows.

Step 10: Make sure all purlin pieces are fully pushed together. Install a ¼" self-tapping screw in the bottom of each connection.

Step 11: Cut off purlin end flush with edge of end bow(s). Tape over rough edges.

Step 12: Starting at outer edge of end bow, mark the bottom of the purlin every 5'.

Step 13: Bows are vertical if the edge lines up with the 5' purlin mark. Loosen clamp and gently force bow toward vertical, if necessary.

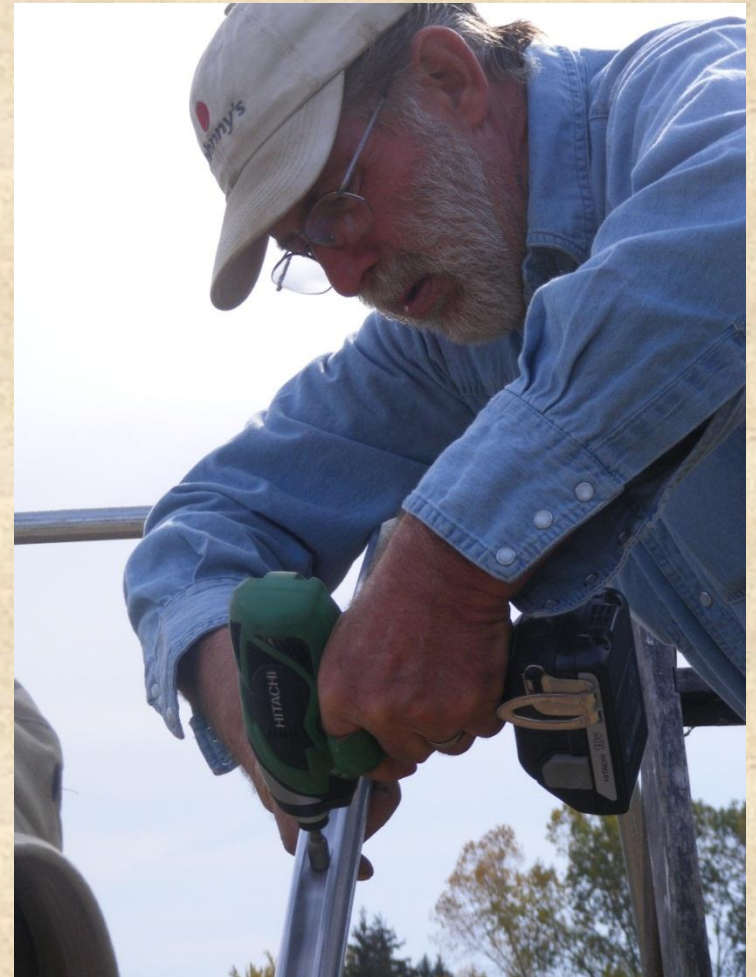


Step 10: Connect purlin pieces

Step 9: Clamp purlin to all bows. In first panel, note that pieces connect between bows and that purlin end extends beyond end bow.



C channel and Wigglewire



Using self-tapping screws, attach C channel to end bow. Top of channel **should not** be over the ridge pole. Flex C channel down over bow, securing every 12-15" inches.

C channel and Wigglewire



Secured C channel



Wigglewire is snapped into the C channel on top of the plastic, attaching it to the frame.



Ken & Lyman secure the loose wigglewire by anchoring it under a tack-board. It can also be folded over and snapped into the channel. Cutting can leave a loose, sharp edge and make the wire hard to remove.

End-wall Construction

The best end wall is the one that fits your needs and is strong. There should be a door on each end, and a lock mechanisms on both sides of each door.

Lyman and Ken's end-wall design requires (per end):

The 12' notched board for the base

Six 8' long 2x4's or 2x3's – for framing

Nine 8' long 1x3's – for jambs and tacking down plastic

Three sheets of plywood

Screws

Interior and exterior locks

Note: An end wall can be built before or after you skin your tunnel. *When skinning second, tape all rough edges on end-wall before dragging plastic onto the frame.*

End-Wall Design

Example photos



2x3 framed plywood end-wall interior
(previously built tunnel)



End-wall exterior
1x3's used to frame door and jamb,
secure cut ends of plastic cover to end-wall
(previously built tunnel)

Skinning

Do not attempt skinning unless the wind is calm

There are two widely used skinning methods:
rope-pulling and unfurling.

Unfurling is the best method for this structure.

Skinning

- Step 1:** Make sure all rough edges are taped (end bow purlin, clamp and channel edges, post joints, rough purlin clamps, etc).
- Step 2:** Unroll folded plastic over top of structure. Leave a few extra feet beyond each end-bow.
- Step 3:** Unfurl plastic down both sides at same time.

Step 2: Unfold plastic



Step 3: Unfurl both sides simultaneously



Skinning

Step 4: Secure far end with wiggewire

Step 5: Cut the plastic from the roll

Step 6: Gently pull toward the cut end until plastic is even and tight. One person maintains tension, the other secures that end with wiggewire.

Steps 1-5
completed



Paracord

- Step 1:** Tie paracord to a corner post bolt using a strong knot.
- Step 2:** Toss roll of paracord over house (to a partner is easiest).
- Step 3:** Pass paracord under bolt of second bow, pinning in/up the loose plastic end.
- Step 4:** Toss over and connect to third bow as above (zig-zag).
- Step 5:** Repeat until at end of tunnel. Should end at corner post on opposite side as start. Cut and temporarily tie off.
- Step 6:** Repeat entire process with remaining bolts.
- Step 7:** Tighten paracord, one line at a time. Start at first corner post and pull slack through to the other end, pass by pass, like lacing a boot. Tie off when done.
- Step 8:** Come back in a week and tighten paracord. Work in same direction as you put it on.

Paracord



Step 3: Pass paracord under bolt, pinning up excess plastic



Steps 4-5: Continue to “lace-up” the tunnel

Steps 6 & 7: Paracord is over entire house and has been tightened.



Done!

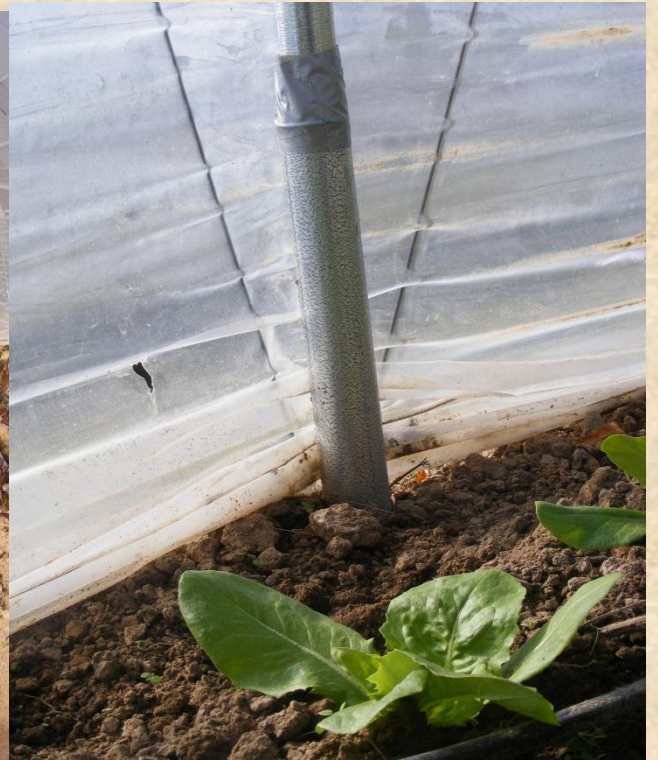


Optional peak and corner bracing



Completed exterior and peak

Done!



Again, many thanks to our hosts

Ken Bowman

and

Lyman Hill



Resources

Cornell Vegetable Program Specialists

(all high tunnel topics)

Robert Hadad

email: rgh26@cornell.edu

phone: 585-739-4065

Judson Reid

email: jer11@cornell.edu

phone: 585-313-8912

Information & articles are available on the CVP website:

cvp.cce.cornell.edu

Note: some features are available only to enrolled program participants. ([Learn more about enrollment benefits](#))

Resources

Cornell Vegetable Program High Tunnels Webpage

http://cvp.cce.cornell.edu/greenhouse_tunnels.php

Material Suppliers (partial, sample list)

http://cvp.cce.cornell.edu/submission.php?id=108&crumb=greenhouse_and_tunnels|greenhouse_tunnels

Johnny Seed's Low Tunnel Bender Instructions

http://cvp.cce.cornell.edu/submission.php?id=107&crumb=greenhouse_and_tunnels|greenhouse_tunnels

Zero Disease Tolerance in High Tunnels

http://cvp.cce.cornell.edu/submission.php?id=109&crumb=greenhouse_and_tunnels|greenhouse_tunnels