



Operations and Maintenance Manual

While your hightunnel is guaranteed to withstand winds up to 70 mph and 30 psf of snow, without proper care and maintenance standard wear and tear through use and rough conditions can threaten the integrity of the structure. In this manual we include recommended practices and additions to your hightunnel to help it last as long as possible and continue to extend your growing season. These recommendations become more important as the length of the hightunnel increases.

General Tips on Preventing Wind Damage

The plastic canopy is in the most vulnerable position when the roll-up bar is completely rolled down should high winds kick up. High winds can lift the plastic and tear it off the roll-up bar. As such, in high winds the hightunnel sides will be more stable with a bit of tension on the roll bar – especially for longer hightunnels. In warmer months roll up the sides half way or more to give the roll-up bar weight. In cooler months completely unroll the sides and wiggle them into place along the end ribs.

General Tips on Preventing Snow Damage

While our hightunnels are strong under heavy snow loads, they will not hold more than 2' of snow on the top. Clear snow from the sides of the hightunnel in order to allow the snow to continue to shed as more snow falls. In heavy storms, use a long rope with towels tied to the middle. Throw one end of the rope over the hightunnel and with a sea saw action walk the length of the hightunnel clearing the snow from the top. Our hightunnels are engineered to withstand 30 psf; they are not engineered to withstand more. 30 psf is close to 2 feet on top of the hightunnel.

Although our hoophouses will withstand strong winds and heavy snow loads, they will experience wear and tear during severe weather events. It is

important to repair, replace, and regularly maintain the hoophouse in order to ensure long life of the structure.

Optional Add-Ons

Given here is a list of possible additions and modifications that can be made to your hightunnel to provide increased strength and support. Note that any damage made to the structure during the installation of the following items may nullify the warranty agreement. At the owner's expense, Roberts Ranch and Gardens is able to perform the installation of any of the following items.

Wind Rope

Because wind is a serious threat, the use of wind ropes is highly recommended. Wind rope is a system of alternating diagonal rope threaded through eye-screws from the wiggle board to the base frame. See video "Importance of Wind Ropes".



Interior Bracing

Interior bracing can be applied to the inside to stabilize the structure against strong bursts of wind. Interior braces are meant to be installed cross-sectionally from one purlin to the other. T-clamps or sockets are typically used.

Cables

Cables are typically installed at opposite corners of the hightunnel at the junction of the purlin and the end rib. This ties the structure together in such a way that when one end of the hightunnel is being affected by a large force, the other end will be able to support and distribute that force down the length of the hightunnel.

Anchors

When anchors are used they are usually driven down at each corner and intermittently along the sides. We recommend every 20ft. Anchors help hold the structure down in the event of extremely violent gusts of wind the threaten to lift the entire hightunnel. Once the anchor receives a significant



tug it uses a mechanism to lock into the ground and hold the structure in place. Recommended for regions that experience unusually high winds.

Reinforcement Posts

Reinforcement posts are often used – even with smaller hightunnels – to help strengthen the end walls. Reinforcement posts are driven down at each end wall in alignment with the framing studs. They are secured to the end wall from the exterior. Because the end walls are the least aerodynamic part of the structure they have the most risk of being damaged in high winds.

Simpson Braces

The simpson braces serve a similar purpose as the reinforcement posts: strengthen the end walls. They are placed on the inside of the end walls where the vertical studs meet the horizontal pieces. End walls are often damaged at these joint spots in high winds.



Bracing

Hightunnels get much of their stability from the strength of the end walls. As such, as the hightunnel becomes larger/longer it is more vulnerable due to an increase in surface without internal supports. 2x4 or 4x4 bracing in a hightunnel is used to create a simple support to reinforce it against heavy snow loads and high velocity winds. These supports can be attached to one or many arcs. We recommend they be attached to the purlins where the rib and purlin intersect.

