



CAROLINA GREENHOUSES
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Transformation

 **MERCY FOR ANIMALS**

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Fig. 1

FASTENING REQUIREMENTS

Fasteners, Washers and Spacers
 Use a screw that is appropriate for the thickness of the panel being applied (See section titled "Accessories" for more information). All screws should feature a corrosion resistant long-life coating to ensure durability. Stainless steel fasteners are recommended in extremely corrosive environments.

Note: It is recommended that SP3 fasteners and accessories be used with ThermoGlas. If products from other suppliers are used, it is imperative that the supplier test and warrant their products for compatibility with polycarbonate. See section titled "Chemical Compatibility" for more information.

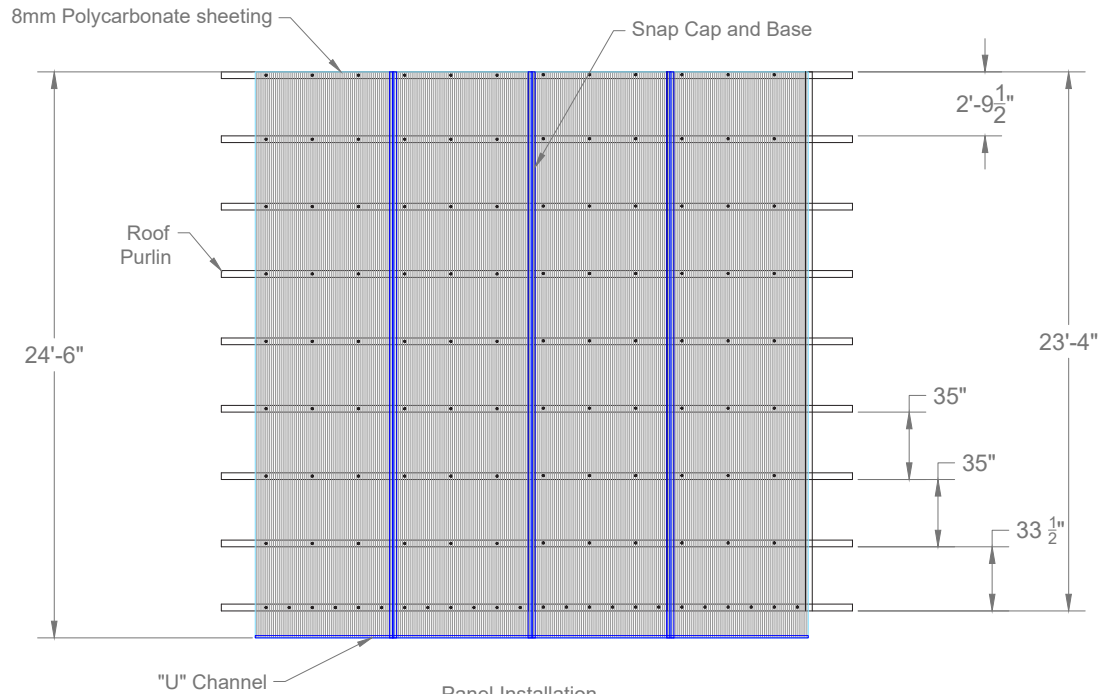
ThermoGlas 8mm panels should be directly point fastened at each purlin location using #10 x 2" wood grip screws or #12 x 1 1/2" self-drilling tapping screw with a 1" (25.4 mm) Umbrella Washer. 1" ThermoGlas Spacer Washers should be used under the support rafter, bottom channel, or ridge, and to help reduce condensation drip at purlins.

Note: ThermoGlas Support Rafter may be fastened with either a #12 x 3/4" self-drilling tapping screw without washer or with a 1/4" machine bolt. Note: ThermoGlas Support Rafter can adapt to any type of roof purlin.

Pre-Drilling
 A hole must be pre-drilled into each screw location. The diameter of that hole should be 2mm or 1/16" (2mm) larger than that of the screw, to allow for thermal expansion movements. Special attention should be given to drill all the required holes perpendicular to the face of the material.

Over Tightening
 An electric screwdriver with an adjustable clutch should be used to tighten screws. It is imperative that over tightening be avoided in order to avoid undue stresses, which would cause premature failure and buckling of the sheet.

Be certain to insert the screws perpendicular to the material face, as inclined insertion could damage the sheet and/or result in leaks.



Refer to Fig. 1 and Fig. 2 for proper mounting and fastener spacing

Fig. 2

Fastener Spacing

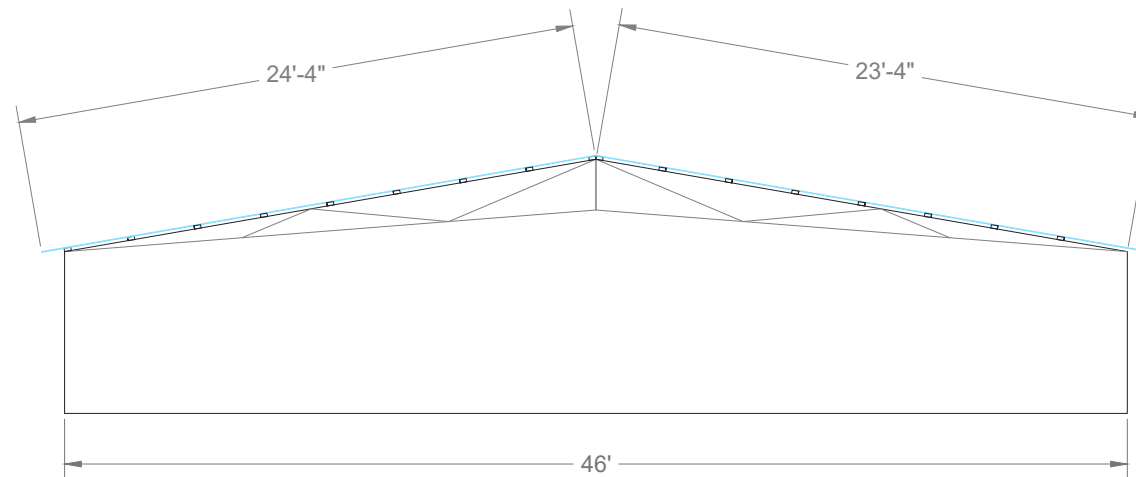
At intermediate purlins:
 The sheets have to be fastened to the purlins by fastening screws, inserted along the supporting purlins, spaced about 24" (600 mm) apart, and 12" (30 mm) from the Support Rafter and Snap-Cap.

At panel ends:
 If panel ends are inserted into glazing profiles with channel recesses designed to accommodate polycarbonate (at ridge, gutter or eave), fasteners are optional, but are highly recommended when wind or snow loads can be excessive. If fasteners are used at these points, placement should be the same as at intermediate purlins.

When panel end over hangs eave:
 Along the edge purlin (or gutter) where the panel is not inserted into a channel recess, the fastening screws should be spaced about 12" (300 mm) apart.

Permeable Tape and a Protective U-Channel should be used for this type application.
Note: Panel ends should not over hang the eave by more than 3" (76mm).

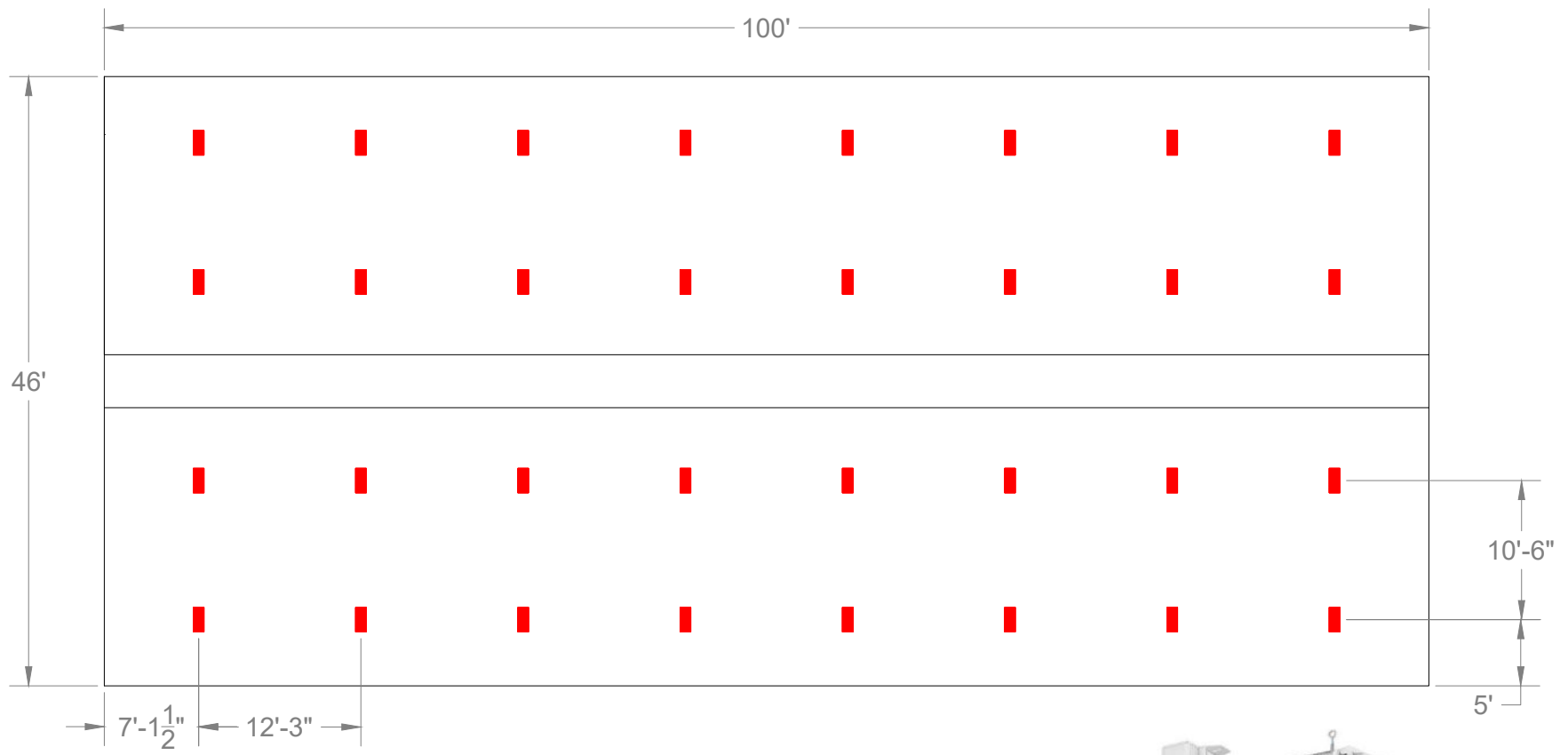
Along vertical edges of panel:
 Fasteners are not necessary along the vertical edges of the panel. Securing the vertical edges of the panels is achieved with ThermoGlas Support Rafter and "SnapCap", ThermoGlas "H" Profiles, or other similar glazing system components.



Note: Diagram shown if for reference only. Actual placement of roof purlins and screw placement depends on existing construction. Refer to installation guide for wind/snow loads.

	DWN.BY	GDS	MAT'L	TITLE	PCSS Guide
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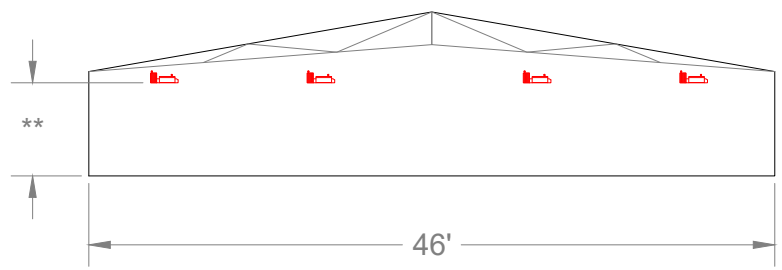


Gavita Pro 1000e

Lighting and Electrical Notes

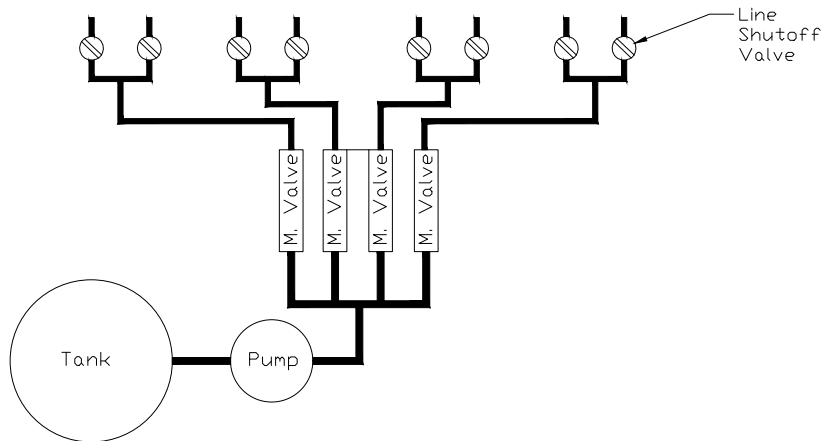
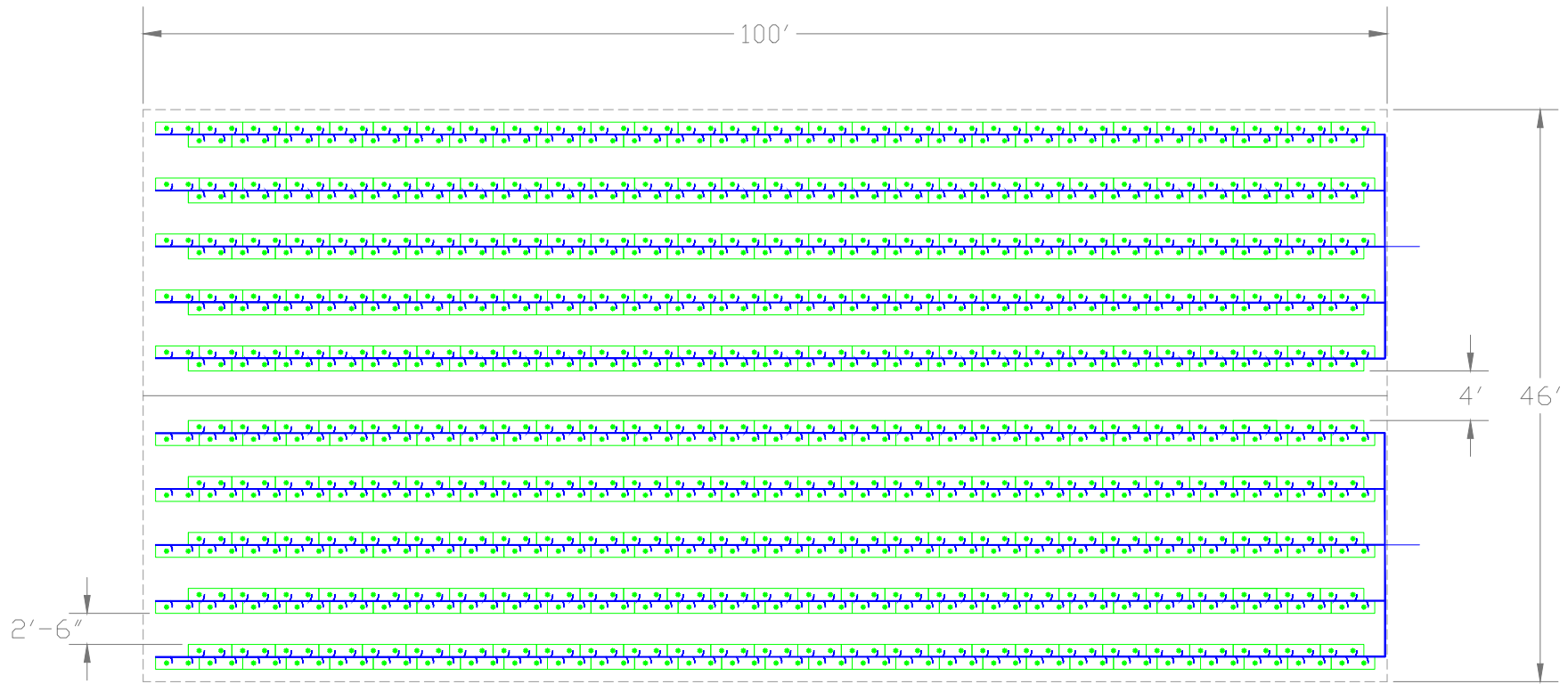
Minimal lighting using Gavita lights is one per 150 sq ft. The 100' section of house will require approximately 32 lights equally spaced throughout the section. Lighting must be controlled from a dedicated lighting panel, or it can be timer controlled from the ventilation control with a relay panel. Lighting may also require substantial rewiring of the structure and possibly increasing the power supply to the structure.

At 240v, the input current for the light at 100% is 4.5 amps. These 4.5 amps multiplied by 32 lights is 144 amps. Using 30 amp breakers and the 75% rule of thumb, it will take seven individual circuit breakers for the lights. Wire sizing and connections should be performed by a licensed electrician and should conform to all local codes and standards.



** Minimum light height from plant surface is 40". Typical height is 6' to 8' from plant surface.

	DWN. BY	GDS	MATL	TITLE	Lighting Reference
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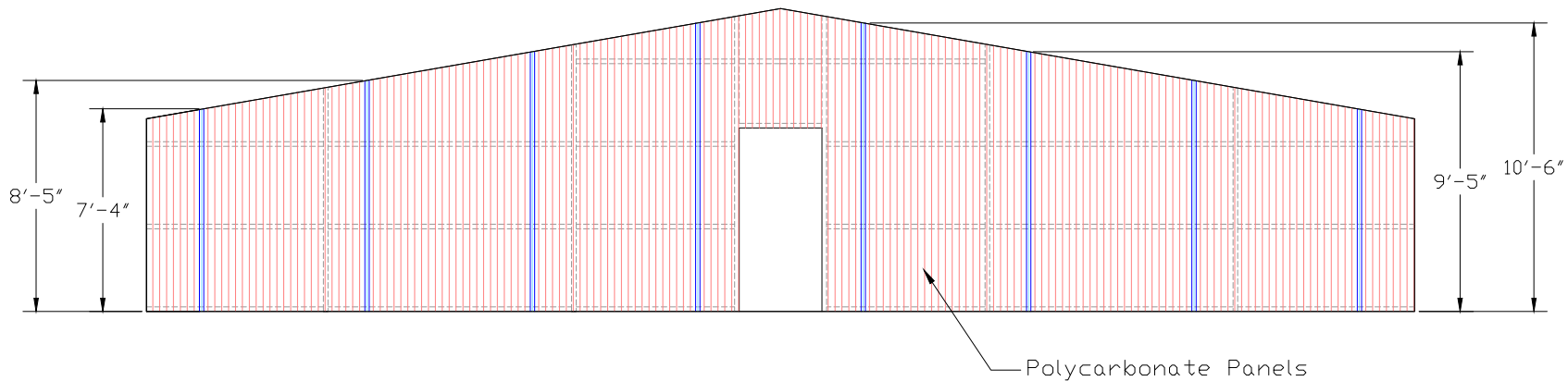
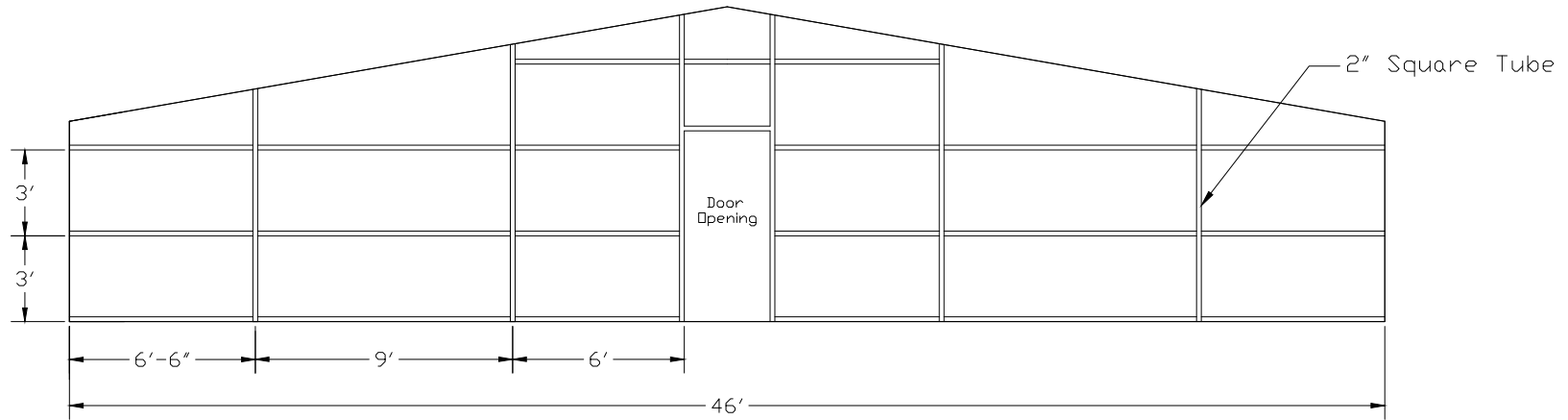


Piping Reference

Plant Capacity

Plant capacity is established using the CSC veggie bags laid out in a grid of double units in a staggered formation and placing two plants per bag. The maximum quantity would be 10 rows of 55 bags (550 bags total) that are spaced with 30" access between rows. This will provide space for a 48" walkway at the center of the house. Irrigation lines can be between rows and service both sides of line. (Note: the location on the irrigation lines may have to be changed based on the crop and need for a clear row.) Each plant site will have a drip line assembly inserted into the bag. Fertilizer and other chemicals can be delivered to the plants from either a premixed tank or a fertilizer injector, depending on the grower's preference. Regardless of delivery method, a manifold system is used to direct the solution into the irrigation lines. The manifold system can be controlled by a timer or by manually manipulating the valves. The manifold and timer system will control which irrigation line is to be fed and for how long. Each individual irrigation line will have a manual shutoff valve. Irrigation lines are typically 3/4" poly lines and can be either black or white.

	DWN. BY	GDS	MPL	TITLE	Plant Layout Reference
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Partitioning

If a permanent partition is desired, the partition can be framed up with either wood or metal posts and girts. A polycarbonate material is then anchored to the frame. Since this is a “more permanent” option, doors can be added to the wall. The materials needed will depend on the size and design of the existing structure. The polycarbonate material is secured using screws and bonded washers. The rubber spacers are optional for this type of installation. The H channel connector and the U channel seal should be used in a manner similar to that used on the roof of the structure.

	DWN.BY	GDS	MATL	TITLE	Partition Guide
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