

## GENERAL PANEL INFORMATION

**POLYCARBONATE PANELS** (POLY 300) contain a translucent UV resistant film on only one side of each panel. Each polycarbonate panel is imprinted with the following: "THIS SIDE OUT". The side of the panel with this information should be installed toward the sun or exterior of the structure it is being used on. The other side of the panel has little UV resistance and will be damaged by the harmful rays of the sun.

Polycarbonate panels are not recommended as exterior privacy walls (which are installed vertically vs. horizontally) because both sides of the panel can receive direct exposure to the sun, hence damaging the panel.

### STORE PANELS PROPERLY:

While a single panel easily withstands exposure to sunlight and the elements, a stack of fiberglass panels will trap heat and moisture, causing clouding to the panels. To avoid this irreversible effect, panels should be stored in a dry, shaded, well-ventilated area. Store panels on edge or on end to shed water. Skids should be elevated at one end with wood spacers.

### FRAMING:

Provide purlin for water drainage rafter member at recommended maximum intervals required for corrugation selected. See LOAD/SPAN CHART on first column. **CUTTING:** Cut fiberglass, PVC, and polycarbonate panels using hand or power saws. Saw blade should be fine-toothed carbide tipped, or safety fabric reinforced abrasive disc. Face shields and appropriate safety equipment should be worn. **DRILLING:** All panels should be pre-drilled not less than 1-1/2" from panel ends and holes drilled a minimum of 1/16" larger for fiberglass panels, and 1/8" larger for PVC and polycarbonate panels than the fastener diameter. Panels may be drilled singly or several at a time.

### CLEANING INSTRUCTIONS:

Panels may be washed with either mild detergent-type cleaners or by steam and high-pressure spray systems. Apply cleaners with sponge or soft brush and rinse thoroughly in cold water to eliminate cleaning agent film build-up. Always follow cleaning agent manufacturer's instructions. Test small area before applying over entire surface. Hard water deposits may be removed with a 10% solution of acetic acid in COLD water. Rinse thoroughly.

FRP (fiberglass reinforced plastic) panels are translucent laminates consisting of a uniform mat of high-strength glass fibers imbedded in organic resin. The resin matrix cures under heat to a solid material which is lightweight, strong, and shatter-resistant; with excellent light diffusion characteristics. Colors are compounded into the resin before cure, thus making the colors an integral part of the composite material.

FRP panels are durable, rot-proof, waterproof, and not harmed by ordinary cleaning solutions. Sequentia® corrugated panels that are reinforced with glass fibers (frp, fiberglass reinforced panels) will expand and contract up to three times less than PVC and polycarbonate panels, which provides for a more stable product in both hot and cold conditions. Panels install much like corrugated metal and provide the added benefit of light transmission.

### MINIMUM BEND RADIUS:

(2.67" x 9/16") Flexing the panel to the point of buckling can cause fracture and rapid deterioration at the fracture point. Install at ambient temperatures not below 60°F.

### MAXIMUM RECOMMENDED SPANS:

The following data is based upon uniform loading of corrugated frp panels, fastened as recommended and with a safety factor of 2.5.

In heavy snow areas, 500 Series (or greater) panels are recommended and closer spacing of purlins should be considered. While panels may not fail under heavy snow loads, strain at fastening points can cause slight cracking.

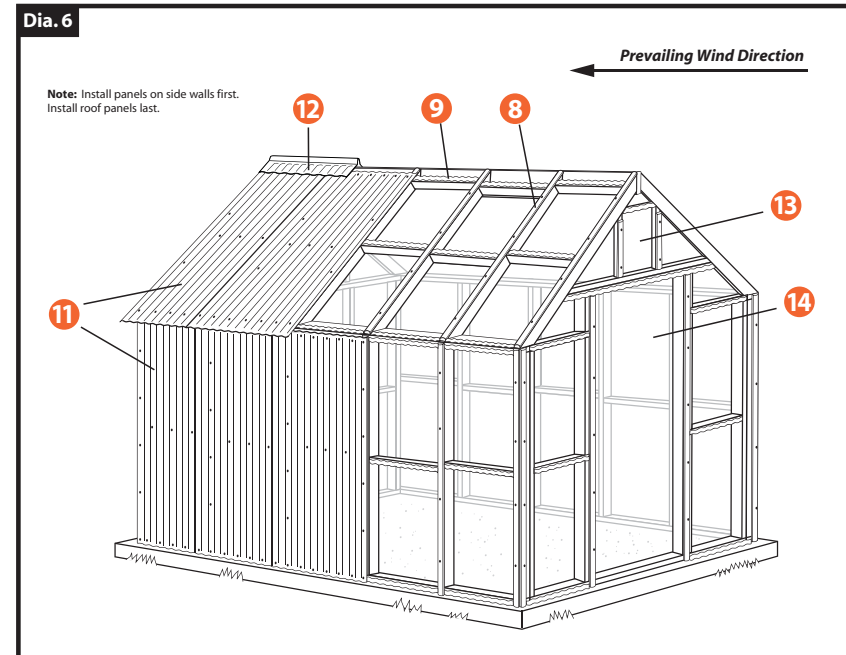
CORRUGATED PROFILE	SERIES	MAXIMUM RECOMMENDED ROOF SPANS			
		10 psf	20 psf	30 psf	40 psf
2.67" x 9/16"	450	36"	28"	24"	22"
	480	34"	29"	25"	23"
	500	37"	29"	25"	23"
	550	38"	31"	27"	24"
	600	38"	32"	30"	24"
4.2" x 1-1/16"	800	42"	57"	50"	45"
	1-1/4" x 1/4"	475	30"	24"	20"

### NOTES:

- Table is based on section properties or actual load tests (available upon request).
- Design loads are governed by local building codes. Consult code authorities for specific loads and stresses.
- Information is provided as preliminary data for designers. It should be checked and verified for use with a duly-licensed engineer or architect.

## SEQUENTIA® PANEL INSTALLATION

- Nail vertical edge strips to tops of rafters and vertical wall members, using 1-1/2" galvanized nails. Drill pilot holes to prevent splitting. (See Diagram 6)
- Determine necessary cuts for horizontal cross strips. Note: Cut crown profiles to match-up with vertical edge strips. Important: test-fit the first cut strip, using a short piece of corrugated panel. When satisfied, use the test piece as a pattern for marking and cutting additional horizontal strips. Tack horizontal strips to all horizontal framing members, using 1" galvanized nails in recesses between crowns. Continue checking alignment of strips, using a small strip of corrugated panel.
- Follow corrugated panel installation instructions for fastening panels to framing. Install vertical wall panels first. Install roof panels last.
- Install corrugated ridge flashing: use approved mastic or caulk to bond flashing to fiberglass panels. Flashing can be further secured using panel nails or screws and sealer.
- Install gable vents after corrugated panels have been installed. Use layered foam enclosures at top and bottom of vents to fill voids.
- Install assembled custom door or ready-made door.
- For easier, neater finishing, paint or stain greenhouse framing before installing corrugated panels. If you are building a custom door, cut and assemble it now. See custom door instructions.



## PANEL INSTALLATION

### INSTALLING:

For best protection against prevailing winds and weather, install panels beginning at leeward end of run and work to windward.



- Provide a minimum of one corrugation overlap at sides.
- Provide 8" end-laps for roofs with pitch of less than 4/12. Use 6" end-laps for pitches greater than 4/12.
- Fasten panels through crowns at every second corrugation. Fasteners with armored Neoprene washers are recommended. Space fasteners 6" to 8" on-center along panel edges and 12" to 16" on-center for intermediate rafters and blocking.

### CONSTRUCTION NOTES:

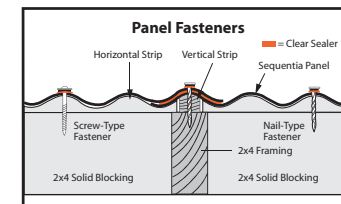
- To avoid deflection of panels, tighten nail/screws until washers will not rotate, then tighten one more turn.
- Avoid excess burrs on drilled or punched holes to protect Neoprene sealing face.
- To help insure weathertight roof, apply a small amount of clear sealer at each hole before installing nails or screws.

### RECOMMENDED OVERLAP:

(2.67" x 9/16") Overlaps shown will provide best protection against leakage and air infiltration. Vinyl lap seal and/or mastic must also be used to achieve effective seal on side-laps and end-laps.

**TYPICAL FASTENERS** include aluminum or galvanized nails or wood screws with Neoprene washers. Fastener selection is dependent upon type of corrugation and under-structure material used. Panels should be pre-drilled a minimum of 1/16" larger than fastener diameter.

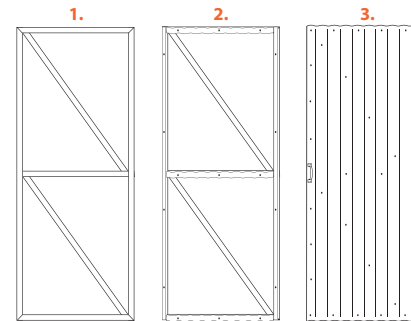
- #10 x 2" galvanized "polebarn" screw with 1/2" armored Neoprene washer.
- 1-3/4" x .145" galvanized nail with Neoprene washer
- 1-3/4" x .145" alum. helix nail with Neoprene washer



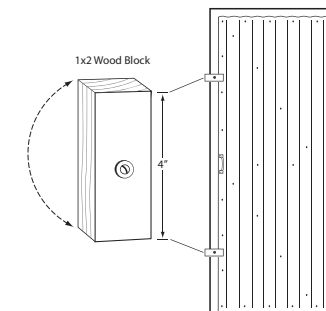
## CUSTOM DOOR

### CUSTOM DOOR INSTRUCTIONS:

- Use 2x2s for constructing the door. Make overall door size 1/2" smaller than door opening. Cut and assemble door frame, using 10d galvanized nails or 3" construction screws. Drill pilot holes to prevent wood from splitting.
- Install vertical edge strips and cross strips to outside of assembled door frame. Fasten corrugated panels to strips, using panel nails or screws.
- Attach door handle and hinges to door, and install in door opening.



Simple door latches can be made, using 4" long 1x2 blocks screwed to the edge of the door opening. Tighten screws just enough to allow blocks to be rotated for latching and unlatching door.



### OPTION:

Sliding bolt latches, or steel lock hasps, can be used as suitable alternatives to wood latches.

PLANS FOR  
• GREENHOUSES  
• STORAGE SHEDS  
• WORK SHOPS



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### PLEASE READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION.

These guidelines are provided in good faith to help prevent installation problems caused by common errors. Crane Composites, Inc. bears no responsibility for installation actions taken or not taken. There are many nuances of installation that Crane Composites, Inc. assumes are general construction knowledge to an experienced installer; such nuances are not included in these instructions. Rather, these installation guidelines are strictly recommendations, not intended to serve as a step-by-step, foolproof installation checklist. Selection of an experienced frp installer is the sole responsibility of the project owner and architect.

If you have any questions about installation techniques for your particular project, please call:

800-238-6874 or 815-467-8600  
Ask for an Inside Sales Representative.

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## BUILDING SAFETY

**IMPORTANT:** Before beginning this project, be sure to check your local building codes pertaining to locating and constructing small garden/storage sheds and greenhouses; obtain any permits and inspections that may be required.

**WARNING:** As required by law, before you dig on the construction site, have all buried utilities (electric, gas, water, phone, cable, etc.) located and clearly marked by a qualified professional.

Corrugated Fiberglass Panels install easily with ordinary tools and may be drilled, sawed, punched, or nailed without damage.

Fiberglass panels are best cut using a sabre saw with a fine-tooth blade, or a circular saw with an abrasive blade.

**WHEN CUTTING OR DRILLING FRP PANELS, ALWAYS WEAR PROTECTIVE GLASSES OR GOGGLES AND A MASK WHICH COVERS THE FACE AND MOUTH.**

Skin irritation due to glass fibers may be avoided by applying a barrier cream to exposed skin areas prior to working with corrugated panels.

**DO NOT WALK ON PANELS.** Observe simple fire precautions. Similar to wood of equal thickness, fiberglass panels can be flash-ignited at approximately 700°F.

### Special Options:

**A.** Make your greenhouse larger or smaller to suit your needs; simply adjust the material list accordingly. Note: When changing plan sizes, it is recommended doing so in 2' increments: 6', 8', 10', 12'.

**B.** Smaller dimensioned lumber (2x2s and 2x3s) may be used to make the greenhouse portable. Important: for larger greenhouse plans, use 2x4 framing and 2x6 rafters.

**C.** Footings and flooring options can vary greatly, depending upon local building codes and personal preference:

- Compacted gravel - 2x8 framing and decking
- Poured or pre-cast piers - 2' x 2' x 2" thick patio blocks
- 4" thick concrete slab - Concrete pavers
- 6x8 treated lumber

**D.** A ready-made screen/storm door can be used in place of the custom door shown in these instructions. Adjust the door opening as required.

**E.** Construct interior shelving and workbenches according to your needs. (Shelving materials and instructions not included in these plans.)

### F. FULL PANEL COVERAGE:

Using full length panels will simplify construction, improve appearance and weather resistance. Tip: Cut excess material into strips and place under potted plants to provide excellent water drainage and air circulation.

### F. ECONOMY PANEL COVERAGE:

Cut full length panels for use on roof and use remaining cut-offs for walls. Begin at bottom and work upwards, overlapping bottom panels 4" or more as desired.

## MATERIAL LIST

### Lumber for 8' x 12' Greenhouse:

- (4) .... 8' L. 2x2 .... custom-made door (optional)
- (3) .... 6' L. 2x2 .... gable vent framing
- (2) .... 10' L. 2x4 .... top sill plates (side walls)
- (3) .... 8' L. 2x4 .... top sill plates (end walls)
- (2) .... 10' L. 2x4 .... treated, bottom sill plates (side walls)
- (2) .... 8' L. 2x4 .... treated, bottom sill plates (ends)
- (23) .... 8' L. 2x4 .... vertical wall members and wall blocking
- (16) .... 8' L. 2x4 .... rafters and roof blocking
- (1) .... 10' L. 2x6 .... ridge board

### Hardware:

- (1) .... door handle/pull
- (3) .... 3-1/2" door hinges
- 10lbs .... 3" galv. 10d nails or 3" framing screws
- 2lbs .... 1-1/2" galv. 4d nails .... vertical filler strips
- 2lbs .... 1" galv. nails .... horizontal filler strips
- (2) .... louvered vents 12" x 16" or as available

### Sequentia® Materials for 2.5" Corrugated Panels\*

- (7) .... 26"W. X 10' L. corrugated roof panels
- (20) .... 26"W. X 10' L. corrugated wall panel (using full length panels)\*\*
- (4) bxs. 1-3/4" X 9 gauge aluminum spiral nails with washers R79003
- (6) .... 11 oz. tubes .... translucent sealant/mastic or caulk R79000
- (35) .... 8' vertical wood filler strips R79040
- (20) .... 8' horizontal wood filler strips R79039
- (2) .... 3' horizontal layered foam closure R79317 (vent closures)
- (4) .... 36" corrugated ridge flashing R79082

\*accessories for POLY 300 Greca profile will differ  
 \*\*(15) for economy panel coverage, cut panels to 40" and overlap on side walls

### Recommended Tools:

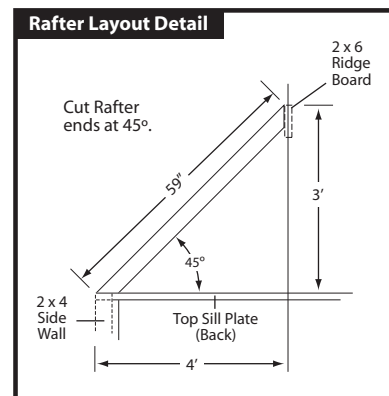
- hammer
- carpenter square
- 4' level
- power circular saw with abrasive blade
- power drill and bits: 1/8" and 3/8"
- caulking gun
- screw gun with #2 phillip-head bit  
 - Needed only if framing is assembled with screws

**The use of corrosion-resistant hardware is strongly recommended for all areas.**

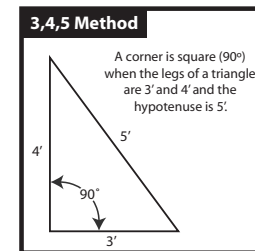
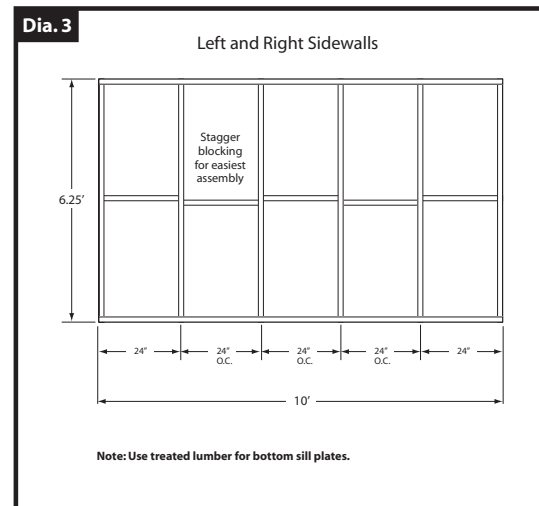
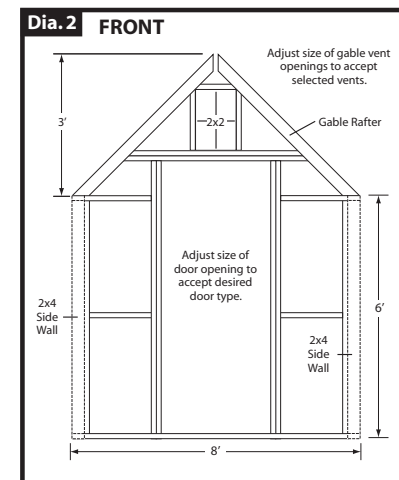
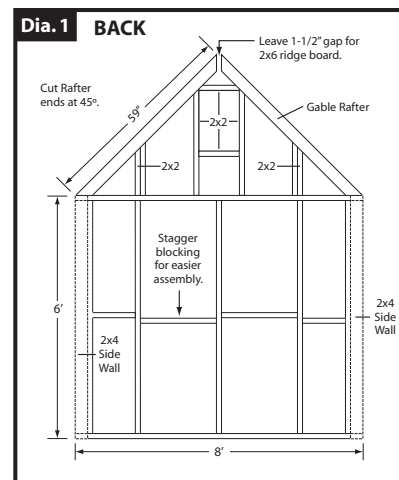
## CONSTRUCTION STEPS

- 1** Choose a good building site, preferably:
  - Level ground with good drainage
  - Sunny area away from large trees
  - Close access to water and electric
- 2** Choose desired footings/flooring materials and install accordingly. Make gravel floors 3' larger than greenhouse footprint, make poured concrete floors 8' larger. Wood floors should be 1" smaller than footprint, so corrugated panels can extend below the framed walls.
- 3** Cut and lay out the front, back, and 2 side wall sections, as shown in Diagrams 1, 2, & 3. Assemble framing members, using 10d galvanized nails or 3" construction screws. Drill pilot holes to avoid splitting dry lumber.
- 4** Erect assembled wall sections on footings/flooring surface, as shown in Diagram 4. Fasten walls at corners, using 10d galvanized nails or 3" construction screws. Square 4 corners, using a carpenter square or the 3, 4, 5 method (see drawing).
- 5** Cut 2x6 ridge board to length and fasten between front and back gables, as shown in Diagram 5.
- 6** Mark rafter spacing and install rafters, as shown in Diagram 5, using 10d galvanized nails or 3" construction screws.
- 7** Cut and install solid blocking between rafters, as shown in Diagram 5, using 10d galvanized nails or 3" construction screws.

Construction steps are continued under Sequentia® panel installation.



## FRAMING LAYOUTS



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## ASSEMBLY INSTRUCTIONS

