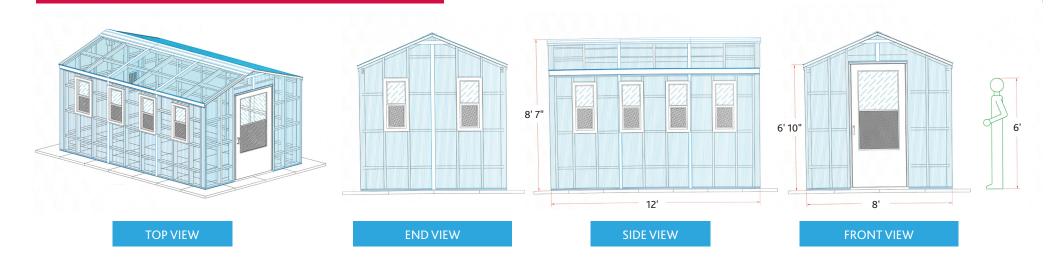




ELEVATION DRAWINGS & DIMENSIONS



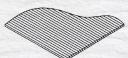
MATERIALS LIST



Concrete Sidewalk Slab • 24" x 30" • 28 Slabs



PVC Trim 1x4, 12ft. • 2 lengths



TUFTEX Multi-Wall Polycarbonate Sheet • 4' x 8', 13 sheets



2x4, 8 ft. **Pressure Treated** • 2 boards



2x4, 12 ft. **Pressure Treated** • 2 boards



2x4, 8 ft. SPF #2 & Better • 45 boards



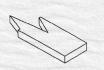
2x4, 10 ft. SPF #2 & Better • 8 boards



2x4, 12 ft. SPF #2 & Better • 5 boards



2x6, 8 ft. SPF #2 & Better • 1 board



2x6, 12 ft. SPF #2 & Better • 1 board



Aluminum Drip Edge 10 ft. • 2 lengths



3" Screws • 1.5 pounds



tor for 2" Lumber • 10 connectors



Ridge Rafter Connec-



Connector Nails • 0.148 x 1.5" · 80 Nails



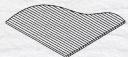
Finishing Screws
• 2.75", 1.5 pounds



Aluminum Nails • 0.148 x 1.5" · 80 Nails



TUFTEX 2" Fasteners • 250 Fasteners





TUFTEX Anti Dust Tape

• 32' long • 3 required



TUFTEX U-Channel • 8' lengths • 16 required



TUFTEX H-Channel • 8' lengths • 11 required



• 51" long

• 3 Required

COMPONENTS LIST



Shed Window • 17" x 35" • 6 Required



Window and Door Caulking •1 required



Storm Door · 36" x 80" • 1 Required



#	Component Name	Quantity
1	Concrete Slab	28
2	137" Sill Plate	2
3	137" Top Plate	4
4	Stud 75 - 1/2"	17
(5)	Cleat 11 - 5/8"	2
6	Stud 95"	1
7	Cleat 12 - 7/8"	2
8	Cripple Stud 9"	1
9	Stud 92 - 7/8"	2
10	Stud 86 - 3/16"	4
11)	Stud 79 - 13/16"	4

#	Component Name	Quantity
12	Bottom Plate 96"	2
13	Top Plate See Detail Drawings	4
14)	Header 39"	2
15	Jack Stud 80 - 1/2"	2
16	King Stud 91 - 1/16"	2
17)	Ridge Beam 144"	1
18	Blocking 10 - 1/4"	12
19	Blocking 14 - 1/2"	33
20	Blocking 13 - 3/4"	12
21)	Blocking 18 - 1 /4"	6
22	Blocking 22 - 1/2"	28

#	Component Name	Quantity
23	Ridge Rafter Connector	10
24	Rafter See Detail Drawings	10
23	Blocking 19 - 3/4"	8
69	Fascia Board 144"	2
27	Roof Sheathing	6
28	Ridge Sheathing	6
29	Front/Rear Wall Sheathing	6
30	Vented Anti Dust Tape	3
31	Solid Anti Dust Tape	3
32	U - Channel	16
83	End Sheathing	1

#	Component Name	Quantity
34)	End Sheathing	1
33	End Sheathing	1
36	End Sheathing	1
37)	End Sheathing	2
38	H - Channel	11
39	Aluminum Drip Edge	2
40	Universal Ridge	3
41	Windows	6
42	Door	1

See Cutting Diagrams and Detail Drawings for full dimension details.

GREENHOUSE GABLE CONSTRUCTION

1

CUTTING THE COMPONENTS

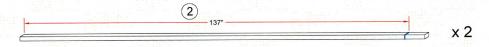
- The Cutting Diagrams show how each piece of lumber is to be broken down.
- The components are numbered in the order they are assembled.

• To maintain the integrity of the wood, all cuts made in pressure-treated lumber should be treated with a wood sealer.

CUTTING DIAGRAMS

2x4 Pressure-Treated Lumber

Two (2) boards, each 12' long are required for component #2.



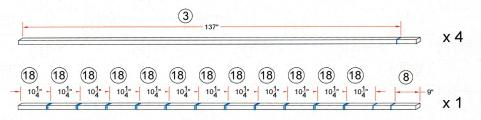
2x4 Pressure-Treated Lumber

Two (2) boards, each 8' long are required for component #12.



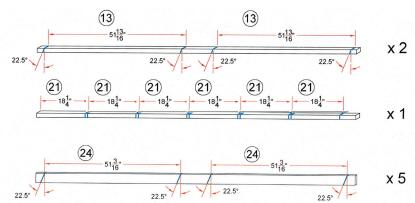
2 x 4 SPF #2 & Better

Five (5) boards 12' long are required for components #3, 8 and 18.

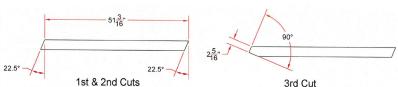


2 x 4 SPF #2 & Better

Eight (8) boards 10' long are required for components #13, 21 and 24.



Rafter 24 Detail Drawings

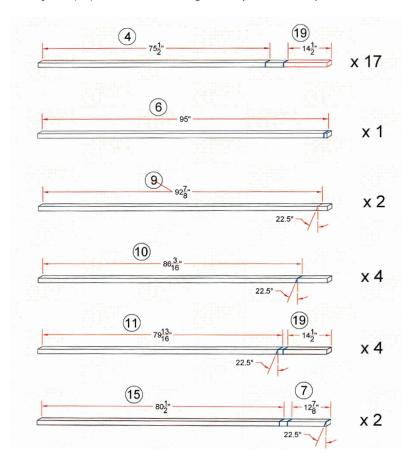


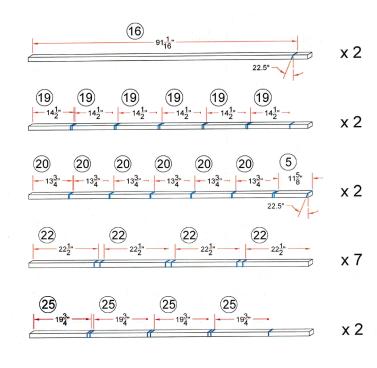
GABLE GREENHOUSE CONSTRUCTION (continued)

DETAIL DRAWINGS

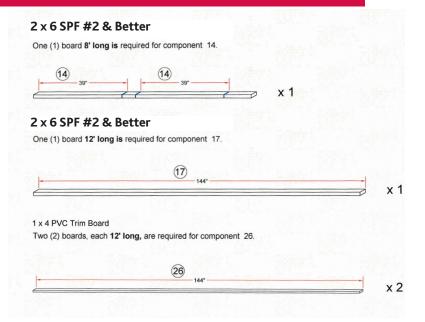
2 x 4 SPF #2 & Better

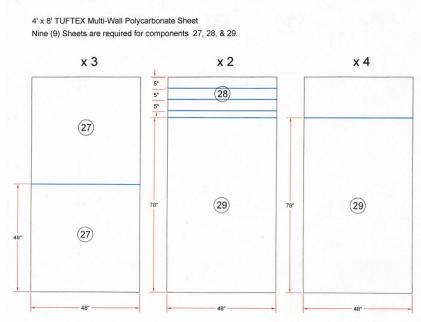
Forty five (45) boards, each 8' long, are required for components 4, 5, 6, 7, 9, 10, 11, 15, 16, 19, 20, 22 and 25.

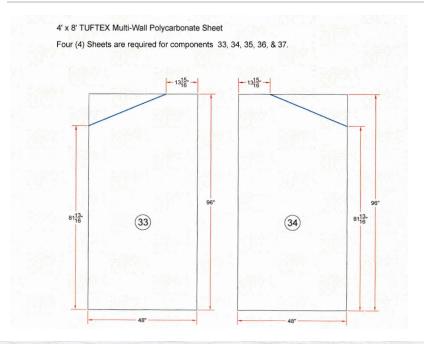


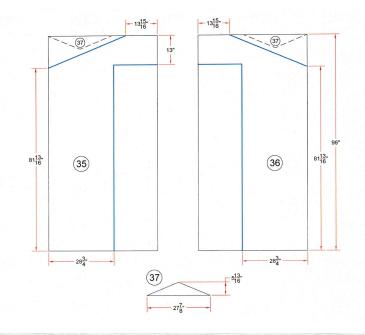


GABLE GREENHOUSE CONSTRUCTION (continued)









GABLE GREENHOUSE ASSEMBLY

NOTES:

Before beginning construction:

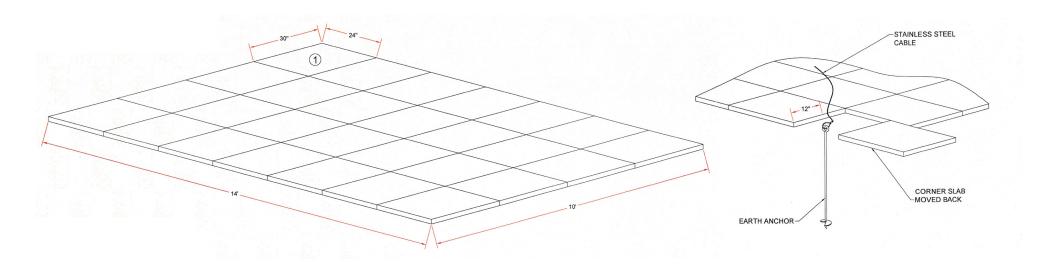
- It is important to read and understand these plans completely.
- The builder is responsible for confirming that the building site and the greenhouse structure are in compliance with local codes and ordinances.

ABOUT THE PLAN:

- This greenhouse plan uses TUFTEX Multi-Wall panels.
- The greenhouse venting is static, meaning no fans or electricity are required. Six sliding windows and a vented storm door allow air flow to be controlled.
- The design uses 24" x 30" concrete slabs that serve as foundation and floor.
- Assembly of the greenhouse requires at least two people as well as equipment to work safely with large components 9' above the ground.
- Temporary bracing may be required during the construction phase.
- The plan has been developed with flexibility in mind. Some examples include:
 - The concrete slab floor and foundation can be replaced with other types of flooring systems (ex: mud sill). This would allow for in-ground planting or a gravel/mulch floor.
 - Windows can be deleted if less static ventilation is preferred.
 - Windows can be added to the rear wall if more stiatic ventilation is required. This can be done by framing the rear wall with the studs 16" O.C. as shown in Step 3.

Please note that builder selected options will mean the Materials List, Cutting Diagrams and assembly procedures will need to be modified accordingly.

STEP 1. CONSTRUCT THE FLOOR

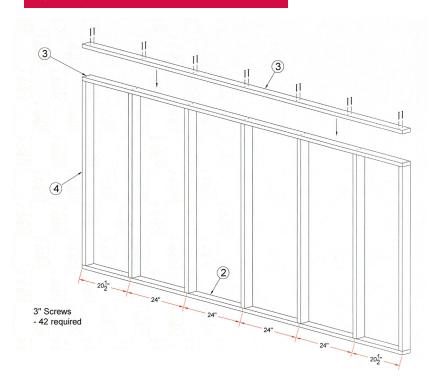


- **1.1** Select and level an appropriate area for the greenhouse.
- **1.2** Position the Concrete Slabs (1) on a level, well drained, and compacted bed, as shown.

Note: In areas where high winds are a concern, the building/structure can be connected to earth anchors.

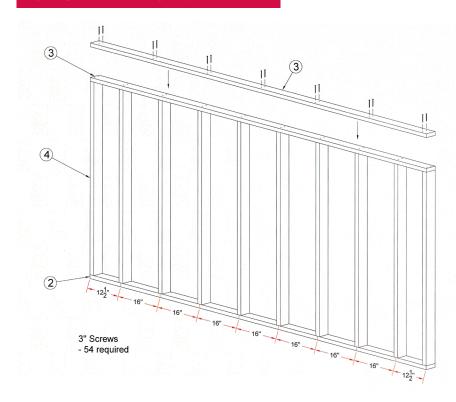
- 1.3 After all concrete slabs have been set into position, slide back the four corner slabs as shown.
- 1.4 Measure 12" in from the edge of the floor as shown and install an earth anchor at each corner.
- 1.5 Make sure the top of all anchors is installed below the surface of the earth.
- **1.6** Secure a stainless steel cable to each earth anchor.
- 1.7 Replace the corner concrete slab threading the cable up between the adjacent slab.
- 1.8 Secure the cable to the frame of the greenhouse.

STEP 2. FRAME THE REAR WALL



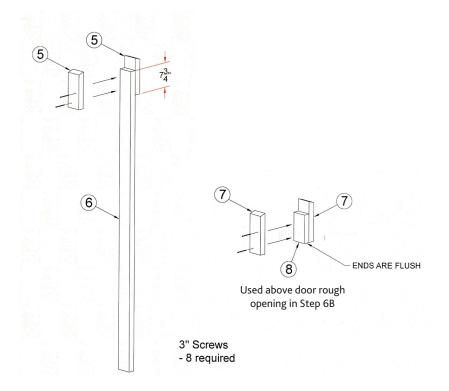
- 2.1 Layout the stud locations on sill Plate (2) and top Plate (3) as indicated.
- 2.2 Position Studs (4) 24" on center between the plates.
- **2.3** Secure the studs to the plates using 3" screws.
- **2.4** Create a double top plate by attaching another Plate (3) to the top of the wall.
- **2.5** Secure the double top plate with 3" screws as shown.

STEP 3. FRAME THE FRONT WALL



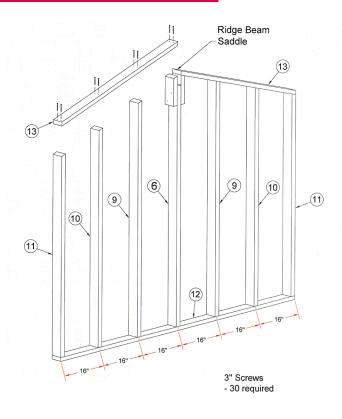
- 3.1 Layout the stud locations on sill Plate (2) and top Plate (3) as indicated.
- 3.2 Position Studs (4) 16" on center between the plates.
- **3.3** Secure the studs to the plates using 3" screws.
- **3.4** Create a double top plate by attaching another Plate (3) to the top of the wall.
- **3.5** Secure the double top plate with 3" screws as shown.

STEP 4. FRAME THE RIDGE BEAM SADDLES



- 4.1 Position the Cleats (5) as shown on Stud (6) and secure with 3" screws.
- **4.2** Position the Cleats (7) as shown on Cripple Stud (8) and secure with 3" screws.

STEP 5. FRAME THE WINDOW END WALL



- **5.1** Position Studs (6), (9), (10), (11) on Plate (12) as shown.
- **5.2** Secure the studs to the plate using 3" screws.
- **5.3** Confirm the stud spacing is correct and attach Plates (13) to the top of the studs as shown.
- **5.4** Make sure the ridge beam saddle at the top of the wall is open and unobstructed.

STEP 6. FRAME THE ROUGH OPENING FOR THE DOOR

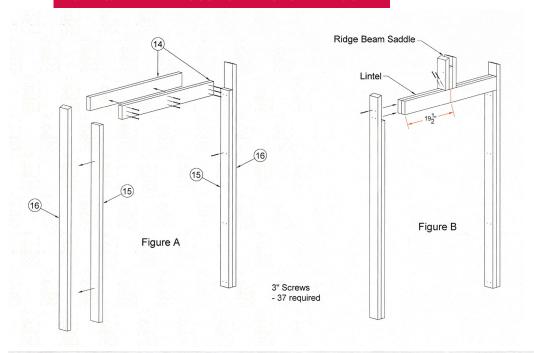


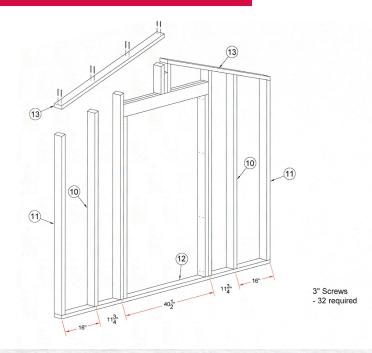
Figure A

- 6.1 Build the door lintel by connecting two Headers (14), flush on all sides, with 3" screws.
- **6.2** Align the bottom ends of the Jack Studs (15) flush with the bottom ends of the King Studs (16) and connect the two using 3" screws.

Figure B

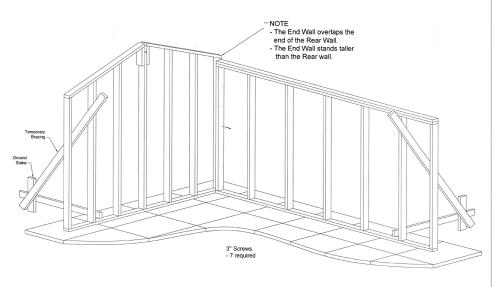
- 6.3 Place the small ridge beam saddle, constructed in Step 4, on top of the lintel.
- **6.4** Center the saddle on the lintel, flush with the outside face.
- **6.5** Secure the saddle to the lintel with 3" screws.
- **6.6** Rest the lintel on top of the jack studs and secure the lintel to the king studs with 3" screws.

STEP 7. FRAME THE DOOR END WALL



- 7.1 Position Studs (10), (11) and the rough opening, constructed in Step 6, on Plate (12) as shown.
- 7.2 Confirm the location of the studs and secure them to the plate using3" screws.
- **7.3** Confirm the stud spacing is correct and attach Plates (13) to the top of the studs as shown.
- **7.4** Make sure the ridge beam saddle at the top of the wall is open and unobstructed.

STEP 8. STAND AND CONNECT THE WINDOW WALL AND REAR WALL



STEP 9. STAND THE WALLS AND INSTALL THE RIDGE BEAM

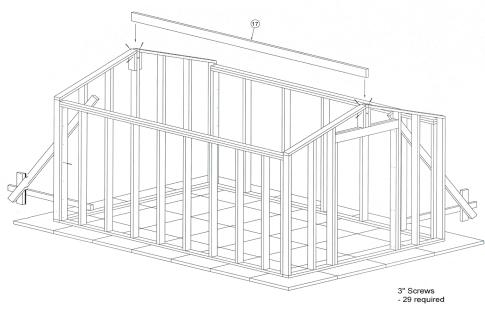


Figure A

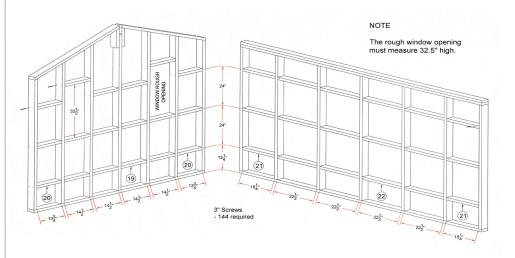
- **8.1** Position the window wall and rear walls as shown.
- **8.2** Confirm that the walls are correctly positioned on the floor, are square to one another and are standing plumb.
- **8.3** Install temporary bracing to safely hold the walls in position.
- **8.4** Connect the walls by driving 3" screws through the rear wall into the end wall as shown.

- 9.1 Position the Front and Door End Walls as shown.
- **9.2** Confirm that the walls are correctly positioned on the floor, are square to one another and are standing plumb.
- 9.3 Connect the walls with 3" screws.
- **9.4** Drop the Ridge Beam (17) into the saddles on the end walls and secure with 3" screws.

STEP 10. INSTALL BLOCKING IN THE FRONT WALL AND THE DOOR END WALL

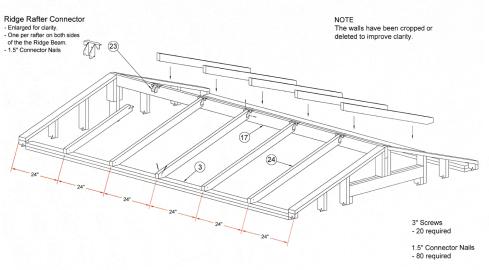
To create a rough opening for the windows, the upper blocking must be raised. The rough window opening must measure 32.5" high. 154 3" Screws - 156 required

STEP 11. INSTALL BLOCKING IN THE WINDOW END WALL AND THE REAR WALL

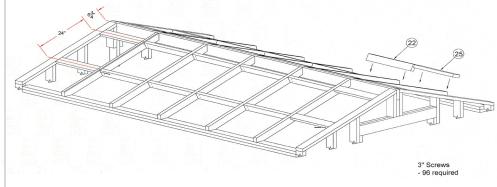


- 10.1 Position Blocking (18) and (19) as shown in the front wall and secure with 3" screws.
- 10.2 Confirm that the rough openings for all windows measure 32.5" in height.
- **10.3** Position Blocking (18) and (20) as shown in the door end wall and secure with 3" screws.
- 11.1 Position Blocking (19) and (20) as shown in the window end wall.
- 11.2 Confirm that the rough openings for all windows measure 32.5" in height.
- **11.3** Secure the blocking to the studs with 3" screws..
- **11.4** Position Blocking (21) and (22) as shown in the rear wall and secure with 3" screws.

STEP 12. INSTALL THE RAFTERS

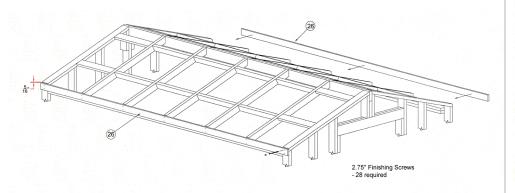


STEP 13. INSTALL THE RAFTER BLOCKING



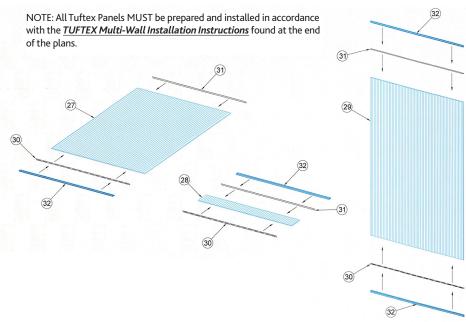
- **12.1** Position the Ridge Rafter Connectors (23) as shown and secure them to the Ridge Beam (17) with four 1.5" connector nails.
- 12.2 Place the top end of the Rafter (24) in the rafter connector and secure it with four 1.5" connector nails.
- **12.3** Confirm the position of the rafter tail and secure it to the Top Plate (3) with 3" screws. The screws are driven at an angle, through the rafter tail, into the double top plate as shown.
- **13.1** Position Blocking (25) horizontally between the end walls and rafters as shown and secure with 3" screws.
- **13.2** Position Blocking (22) vertically between the rafters as shown and secure with 3" screws.

STEP 14. INSTALL THE FASCIA



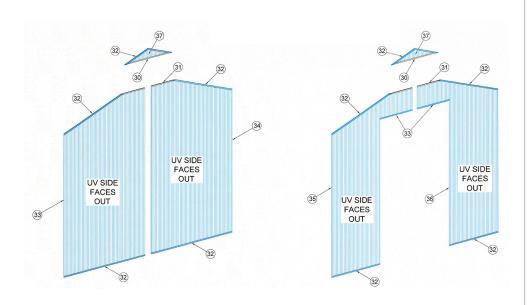
- **14.1** Position the Fascia Boards (26), 5/16" below the top of the rafter tails, and secure it with 2.75" finishing screws.
- **14.2** For best results, paint (white) the top edge of the rafter or closure strip that is exposed to sunlight.

STEP 15. PREPARE THE TUFTEX MULTI-WALL SHEATHING PANELS



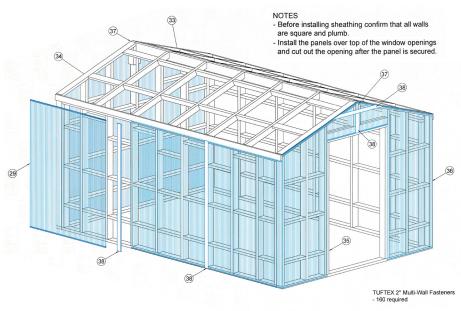
- install O-Channel (32) over the top and bottom edges of the wall(29) panels.
- **15.1** Cut the sheathing panels according to the dimensions found in the Cutting Diagrams.
- **15.2** Prepare the Roof Sheathing (27), Ridge Sheathing (28) and Front/Rear Wall Sheathing (29) for installation by applying Vented Anti-Dust Tape (30) to the BOTTOM edges of all panels.
- 15.3 Apply Solid Anti-Dust Tape (31) to the TOP edges of all panels.
- 15.4 Install U-Channel (32) over the bottom edge of the Roof (27) panels.
- 15.5 Install U-Channel (32) over the top edge of the Ridge (28) panels.
- 15.6 Install U-Channel (32) over the top and bottom edges of the Wall (29) panels.

STEP 16. CUT AND PREPARE THE END SHEATHING



- 16.1 Cut the End Sheathing (33), (34), (35), (36) and (37) to size taking care to ensure the UV labelled side of the sheathing will be on the outside of the panel when it is installed.
- 16.2 Apply Vented Anti-Dust Tape (30) to the bottom edges of all panels.
- 16.3 Apply Solid Anti-Dust Tape (31) to the top edges of all panels.
- 16.4 Install U-Channel (32) over the top and bottom taped edges of the panels as indicated.
- 16.5 All assembly must be done according to the manufacturer's Installation Instructions.

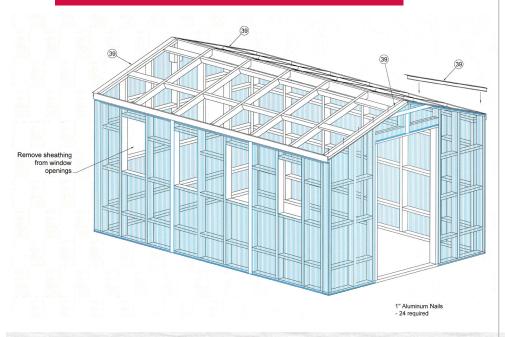
STEP 17. INSTALL THE WALL SHEATHING



- Aligir trie second parier, cominini trie 170 gap at trie top and secure as instructed

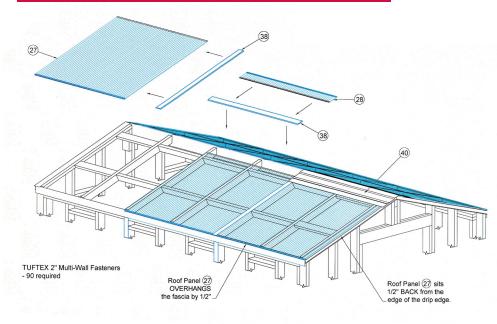
- Repeat the process on the second end wall
- Begin by attaching sheathing (33), (34), (35), (36) and (37) to the end walls.
- 17.2 Working from the CENTER of the end wall, position the first panel 1/8" below the top of the end wall and secure it as instructed by the manufacturer.
- 17.3 Use H-Channel (38) to connect the edges of the Multi-Wall panels as instructed by the manufacturer.
- 17.4 Align the second panel, confirm the 1/8" gap at the top and secure as instructed.
- 17.5 Repeat the process on the second end wall.

STEP 18. PREPARE THE WINDOW OPENINGS AND INSTALL THE ALUMINUM DRIP EDGE



- 18.1 Cut out the sheathing that covers the window openings.
- 18.2 Cut Aluminum Drip Edge (39) to length and secure it with aluminum nails.

STEP 19. INSTALL THE ROOF SHEATHING AND RIDGE CAP



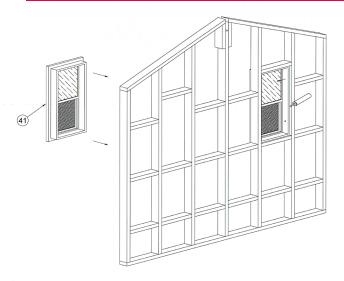
- Use H-Channel (38) to connect the bottom of Ridge Panel (28) to the top of the roof panel just installed.

- Secure the ridge panel as instructued by the manufacturer. 7.
 In the Basin by postisoning poore sandula 70 south substitute and secure, the first Universal Ridge 40 as per the manufacturer's Installation Instructions.

 Repeat this secure, the first Universal Ridge 40 as per the manufacturer's Installation Instructions.

 Repeat this secure the drip edge.
 - Secure the panel as instructed by the manufacturer.
 - 19.2 Use H-Channel (38) to connect the bottom of Ridge Panel (28) to the top of the roof panel just installed.
 - 19.3 Secure the ridge panel as instructed by the manufacturer.
 - 19.4 Install the corresponding panels on the opposite side of the roof in the same manner.
 - 19.5 Position and secure the first Universal Ridge (40) as per the manufacturer's Installation Instructions.
 - 19.6 Repeat this sequence to complete the roof sheathing.

STEP 20. INSTALL THE WINDOWS



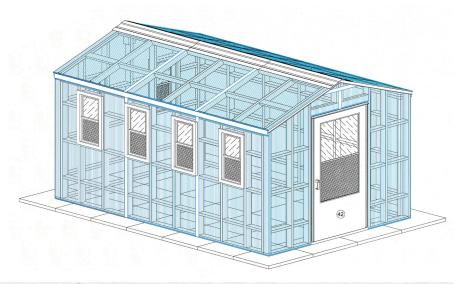
TUFTEX 2" Fasteners

- 4 per window
- 24 required

Window & Door Caulking

- 1 required
- 20.1 Working from the outside of the building, insert a Window (41) into the rough opening.
- **20.2** Confirm that the window is centered and plumb in the opening. Shim as necessary.
- **20.3** Working from the inside of the greenhouse, secure the window by driving two fasteners, as shown, through both vertical window jambs into the adjacent studs.
- **20.4** Waterproof the window by running a bead of Window and Door Caulking around perimeter of the window jambs.
- 20.5 Repeat this procedure for all windows.

STEP 21. INSTALL THE DOOR



- Install the Door (42), and associated hardware, in accordance with the manufacturer's Installation Instructions.
 Installation Instructions are included with the door.
- **21.1** Install the Door (42) and associated hardware, in accordance with the manufacturer's Installation Instructions.
- 21.2 Installation Instructions are included with the door.

Disclaimer: In addition to the Terms of Use found at www.fcl.crs/contact-us/privacy-terms, you are responsible for any applicable code approval or permits associated with the construction and use of this plan. Check with a building-code official or a building expert to make sure that the materials and construction methods shown meet local codes and conditions and are suitable to your situation. It is the responsibility of the builder to ensure the proper tools, measurements, cuts and building techniques are used in the construction of this plan. CO-OP® assumes no responsibility for the incorrect use of this information. Please ensure the manufacturer's instructions are followed in the use of all tools and materials and heed all recommended safety guidelines.

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TUFTEX MultiWall

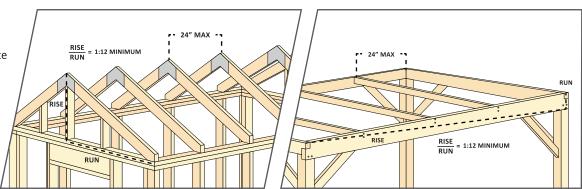
Dependable Polycarbonate Panels

PROJECT PREPARATION

Ensure your structure has the appropriate spacing and slope to support TUFTEX® MultiWall panels and allow for proper drainage.

Spacing: 24" OC Max Slope: 1:12 (5°) Open channels (flutes) in panel must run vertically when applied outside.

Always refer to local building code before starting any project



TOOLS REQUIRED



Tape





(80+ Tooth Blade) **Plastic Cutting Blade**



Marker



Eve Protection



C-Clamps



100% Silicone Sealant (Optional)



Jig-Saw (Optional)

ESTIMATING MATERIAL

TUFTEX® MULTIWALL PANEL

Length: 96" Width: 48"

Coverage: 32 sqft

*Install with flutes vertically if applying outside

TUFTEX® U-CHANNEL PROFILE

Seals top and bottom of panels Length: 96"

Estimate: Ridge + Eave length in feet divided by 8 = pcs needed



Joins two panels side-by-side Length: 96"

Estimate: Joint length divided by 8 = pcs needed **TUFTEX® 2" FASTENERS**

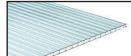
Head: 1/4" Hex Predrill panels Do not fasten on profiles

Estimate: 16 fasteners per panel

TUFTEX® ANTI-DUST TAPE

Length: 32 ft Solid - apply to top of panel Vented - apply to bottom of panel

*Each roll has both vented and solid tape











U Channel



bottom

TUFTEX® UNIVERSAL RIDGE

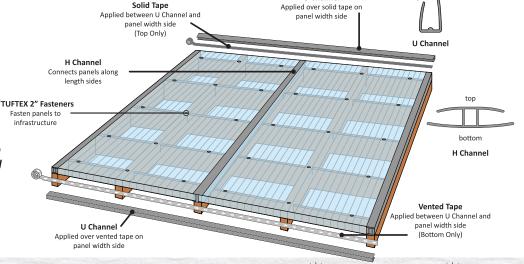
Length: 51" Width: 18"

Coverage: 4 Linear feet *For use on roofing application



Panels have polyethylene film applied to both sides to prevent scratches. One side is marked as UV protected and should face outward.

DO NOT fully remove these films until project is complete.



STORING PANELS

- Keep panels protected from direct sun-light and moisture when stored
- When working on project, be sure sheets are positioned with UV film side upwards



TUFTEX® MULTI-WALL

6mm 48"x 96" Installation Instructions



Always wear appropriate protective equipment and follow manufactures' directions when operating power equipment or any other tool

CUTTING PANELS







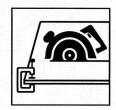






- Sheets should **always** be clamped down firmly to reduce vibration
- Rounded/curved cuts are best made with a band saw or jigsaw
- Cut with a fine-toothed table saw or circular saw (80+ teeth) with a double sided and certified for plastic cutting blade
- Clean the dust from the flutes using an air compressor or vacuum
- Cuts should be done at a high RPM moving slowly down or across the sheet





Ensure the side of the TUFTEX Multi-Wall Panel with the UV protection mark is faced outward. DO NOT REMOVE FILM UNTIL PROJECT IS COMPLETE.

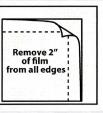
INSTALLING PANELS







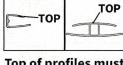


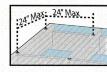












Top of profiles must face outward

24" Maximum **Fastener spacing**

- Remove 2" of film from all edges to apply tape and connect profiles
- Pre-drill all fasteners holes 1/16" larger than fastener use 9/32" bit if using TUFTEX® 2" Fasteners
- Apply tape to ends of panels and slide on U-Channel profiles TOPSIDE FACING OUTWARD
- **DO NOT** over tighten fasteners
- Fasten no more than 2" from edge of panel. No more than 24" between fasteners
- Maximum overhang is 3"
- System does not need sealant, but 100% silicone sealant may be applied to inside of H or U channel profiles
- 100% silicone sealant may be used to seal flashing along side walls
- Polycarbonate and silicone contract and expand at different rates and may cause complications when sealing

INSTALLING RIDGE

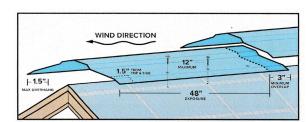








- Align TUFTEX Universal Ridge piece with ridge of structure. Pre-Drill Fastener holes in both the Ridge piece and the Multi-Wall panel
- Ensure fastening aligns with support structure. DO NOT FASTEN RIDGE TO PANELS ONLY
- Pre-drill all fasteners holes 1/16" larger than fastener use 9/32" bit if using TUFTEX® 2" Fasteners
- Position fasteners no more than 1.5" from edge of ridge panel
- **DO NOT** over tighten fasteners
- Fasten no more than 2" from edge of panel
- No more than 12" between fasteners
- Maximum overhang is 1.5"
- Minimum overlap of Tuftex Universal Ridge pieces is 3"



CARE & MAINTENANCE

The use of harsh tools or certain chemicals could cause abrasions to the surface of polycarbonate sheets

- Apply warm water to the surface of the polycarbonate
- Wipe with any soft cloth, and warm soapy water
- Rinse off and use paper towels or any soft cloth to dry the sheet off.