

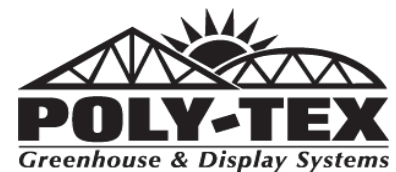
20'-24' FieldPro[®] gable high tunnel 20'-24'

INSTALLATION INSTRUCTIONS



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SAFETY GUIDELINES

PLEASE READ THE INSTALLATION INSTRUCTIONS CAREFULLY BEFORE ASSEMBLING THE STRUCTURE. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

WARNING

This structure is intended to be self-supporting, provided it is constructed with all frames, hardware, sheathing, sheeting, bracing, cables, and membrane in place, and secured to the foundation as shown in the manual. Stability during construction, from winds and loads imposed during erection, is the sole responsibility of the installer. Observe safety codes required by your jurisdiction, and relevant safety practices for working at heights. Avoid the risk of electrical shock from overhead lines or electrical storms. Poly-Tex recommends contracting a licensed electrician to perform electrical work. Eye protection is recommended under all circumstances and hearing protection is recommended when cutting components with power tools.

Foundations

These instructions include minimum guidance for foundations based on the International Building Code. These minimums are suitable for some areas of the country but not all. Obtain a building permit if required in the local jurisdiction. Engineered and Certified foundation plans may be required by a building official before issuing a permit. Even if not required, seeking guidance from a qualified structural or civil engineer for the foundation design may improve the life of the structure.

DANGER

No part of this structure is engineered to function as an anchorage point for a fall arrest system. Use a safety net or work from a safe work platform (i.e. scaffolding). Select a calm day for work. Wind can be sufficient enough to knock materials or workers off a work platform or ladder, resulting in a potentially deadly fall.

Overview of assembly procedure

While each structure and site is unique, and may require special considerations, these instructions are for a tilt-up method (where frames are assembled on the ground and tilted onto ground stakes or anchor rods using ropes or lifts). If installer is not confident to erect the structure, Poly-Tex suggests hiring a general contractor, carpenter, or similar licensed business familiar with construction, to assemble and erect the structure.

DANGER

Do not overload structure. Consult with a Poly-Tex representative prior to adding any amount of weight over the specified capacity of this structure. Basket purlins, shelving or any objects of significant weight shall not be hung, attached, or secured to roof or truss members in a manner that will overload the structure.

WARNING

Do not walk on polycarbonate sheets. If structure is to be covered with polycarbonate sheets, always use scaffolding for the erection process to avoid damage to sheathing and to ensure safety. Polycarbonate sheeting has UV coating protected with vinyl film on the exterior surface. Install sheets with the film intact and toward the exterior. Remove film once the sheet has been fastened in place.

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PART IDENTIFICATION - 20' & 24' GABLE HIGH TUNNEL

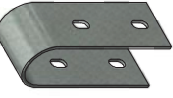
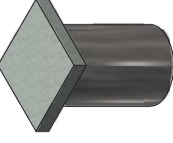
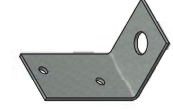
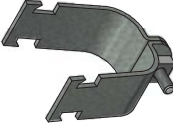
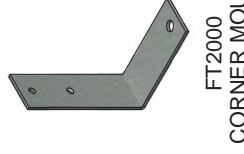
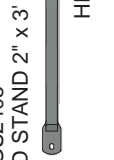
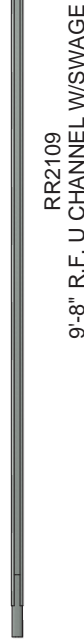
20' GABLE COMPONENTS



24' GABLE COMPONENTS



COMMON GABLE COMPONENTS



GROUND STAKE INSTALLATION

*** CONCRETE PIER OPTION ***

1. LAY OUT THE FOUR SIDES OF THE BUILDING ACCORDING TO THE PLAN DIMENSIONS PROVIDED. DRIVE A TEMPORARY STAKE FIRMLY IN EACH CORNER. **FIGURE 1**
 2. TO SQUARE UP THE STRUCTURE, MEASURE DIAGONALLY. THESE MEASUREMENTS SHOULD BE THE SAME. ADJUST THE POSITIONS OF ONE PAIR OF END STAKES, WHILE MAINTAINING THE PROPER SPACING, UNTIL THE DIAGONALS ARE EQUAL. ONCE THIS IS COMPLETE, CHECK ALL FOUR SIDES OF THE LAYOUT FOR CORRECT MEASUREMENTS.
 3. FOR DRIVEN GROUND STAKES, SKIP TO STEP 7.
 4. DETERMINE WHETHER THE BUILDING WILL BE INSTALLED LEVEL OR TO A DEFINED SLOPE. SET UP ELEVATION REFERENCE MARKERS OUTSIDE EACH CORNER.
- ▲ IMPORTANT ▲**
5. WHEN LOCAL WIND OR SOIL CONDITIONS WARRANT CONCRETE PIERS FOR POST ANCHORS, INSTALL THE GROUND STAKES ACCORDING TO **FIGURE 2**.
 6. USE A TIGHT STRING LINE BETWEEN CORNER POSTS AND PLACE A MARK ON EACH GROUND STAKE 4" BELOW THE STRING. FOR LONGER STRUCTURES, SIGHT ALONG STRING AND SUPPORT IT EVERY 50' AT AN ELEVATION THAT APPEARS VISUALLY STRAIGHT. INSTALL A SELF DRILLING SCREW ON THE INSIDE PORTION OF THE POST AT EACH MARK.

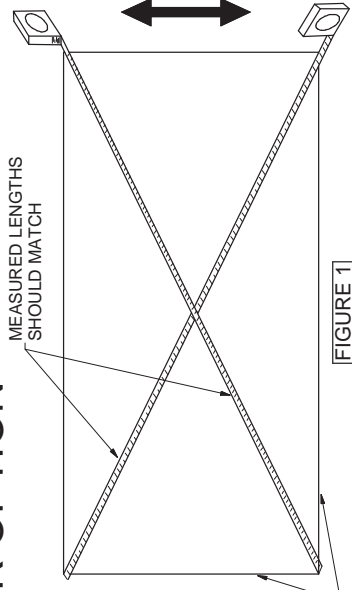


FIGURE 1

INSTALLING GROUND STAKES IN AUGERED PIER

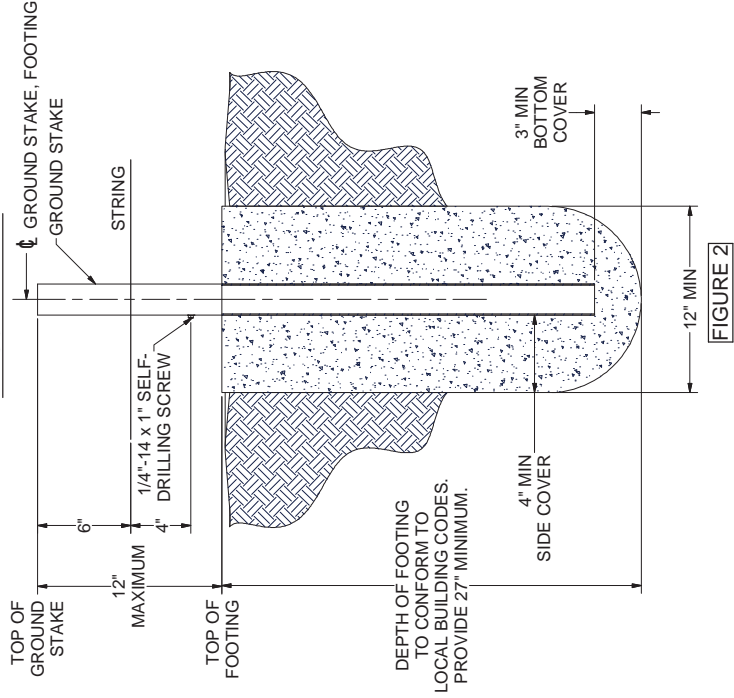


FIGURE 2

GROUND STAKE INSTALLATION

◆ DRIVEN STAKE OPTION ◆

7. FOR GROUND STAND USE, START WITH STEP 10. USE THE DRIVING TOOL TO DRIVE THE FOUR CORNER GROUND STAKES APPROXIMATELY 24" INTO THE GROUND UNTIL THE TOP ELEVATION MATCHES DESIRED BUILDING SLOPE, IF ANY. ATTACH A STRING LINE BETWEEN EACH PAIR OF CORNER STAKES AT 8" BELOW THE TOP OF EACH STAKE, AND PULL TIGHT. USE THE STRING TO DETERMINE GROUND STAKE ALIGNMENT & ELEVATIONS.

8. DRIVE THE REMAINING GROUND STAKES INTO THE GROUND, LEAVING APPROXIMATELY 8" ABOVE THE STRING FOR SECURING HOOPS. [FIGURE 3]

9. DRIVEN GROUND STAKES MAY BE CUT OFF TO REMOVE PORTION DAMAGED BY DRIVING. MAINTAIN A MINIMUM OF 10" ABOVE THE SCREW, BECAUSE THE STAKE MAY BE REUSED, CUT OFF ONLY WHAT IS NECESSARY. SKIP TO STEP 14.

10. FOR MODERATE WIND AND SOIL CONDITIONS, INSTALL GROUND STANDS ACCORDING TO FIGURE 4.

11. DIG AND SET GROUND STANDS AT THE FOUR CORNERS APPROXIMATELY 24" INTO THE GROUND UNTIL THE TOP ELEVATION MATCHES DESIRED BUILDING SLOPE, IF ANY. ATTACH A STRING LINE BETWEEN EACH PAIR OF CORNER STANDS AT 8" BELOW THE TOP OF EACH STAKE AND PULL TIGHT. USE THE STRING TO DETERMINE GROUND STANDS ALIGNMENT & ELEVATIONS.

12. SET GROUND STAND IN PLACE, REPLACE SOIL, AND COMPRESS AROUND STAND, TAMP THE SOIL FIRMLY EVERY 6 INCHES OF DEPTH.

13. HOLES FOR GROUND STAND INSTALLATION MAY BE DRILLED OR DUG. ADD OR REMOVE SOIL IN THE BOTTOM OF THE HOLE TO ADJUST THE STAND TO A PROPER ELEVATION AND TAMP THE SOIL AT THE BOTTOM OF THE HOLE FOR A SECURE SUPPORT BEFORE FINAL PLACEMENT OF GROUND STAND.

14. USE THE STRINGLINE TO PLACE A MARK ON THE GROUND STAKES 4" BELOW THE STRING. INSTALL A SELF-DRILLING SCREW AT THIS MARK. [FIGURE 5]

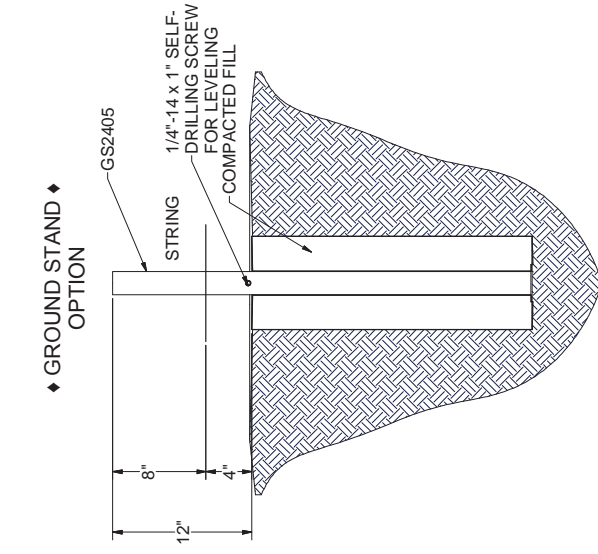


FIGURE 4

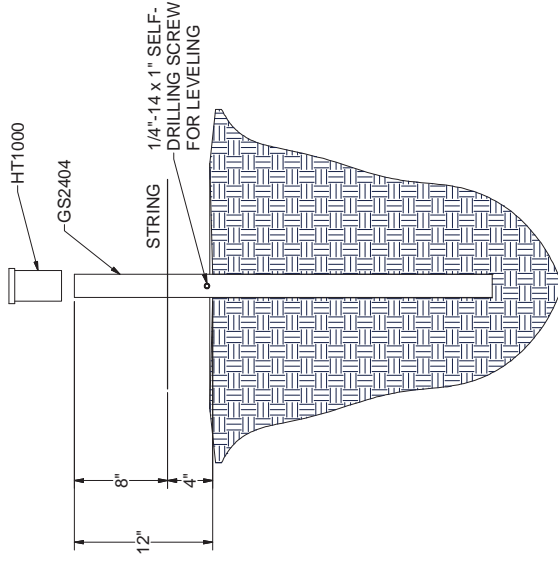


FIGURE 3

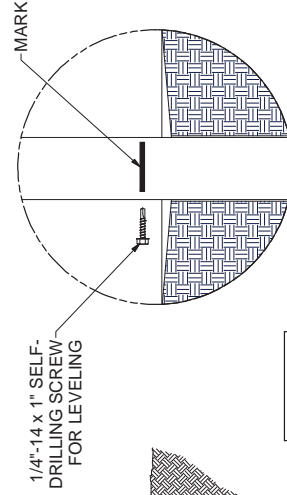
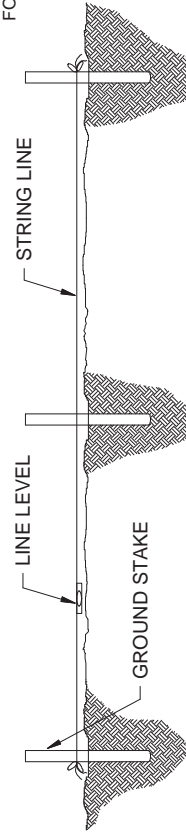


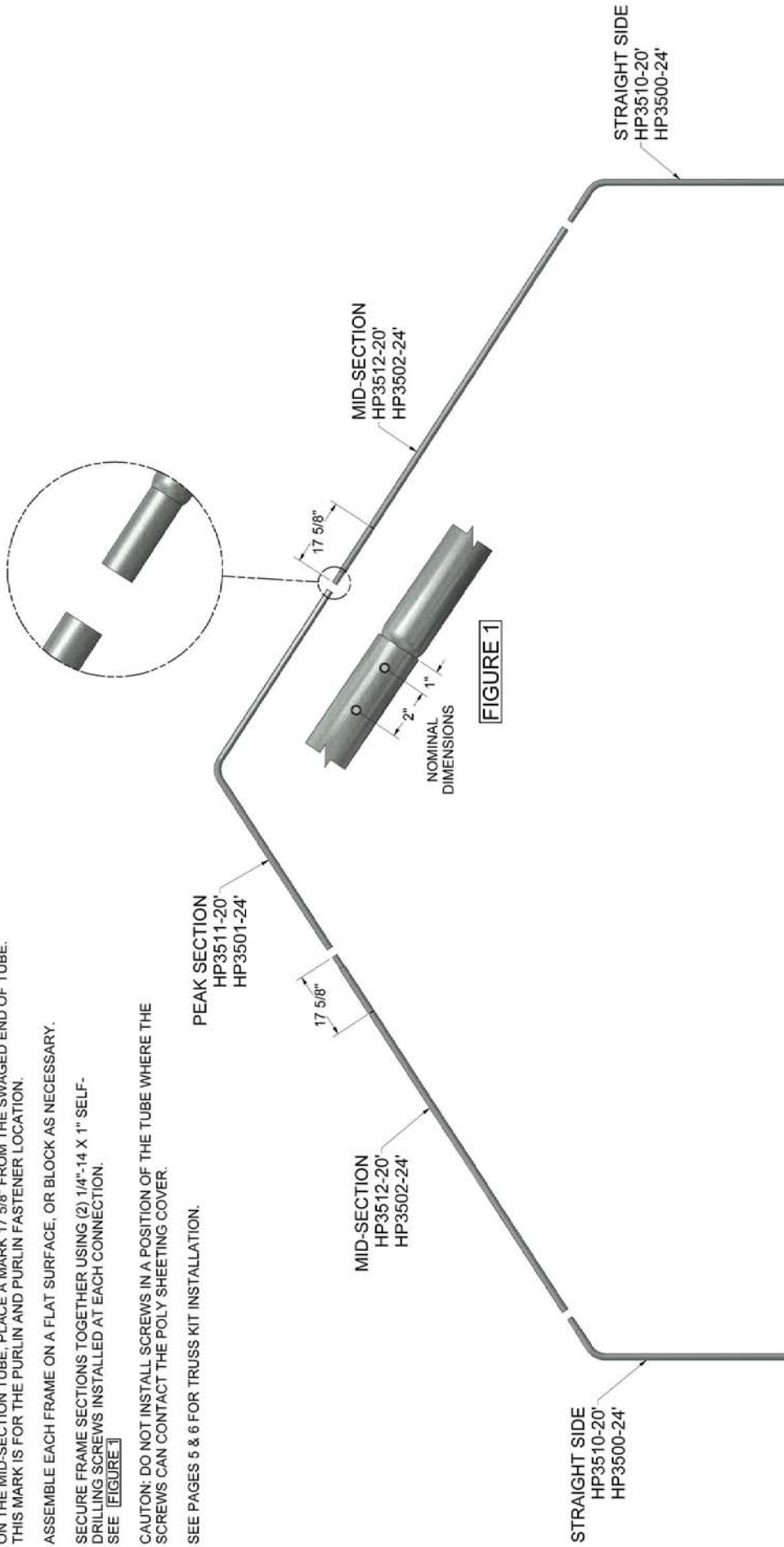
FIGURE 5



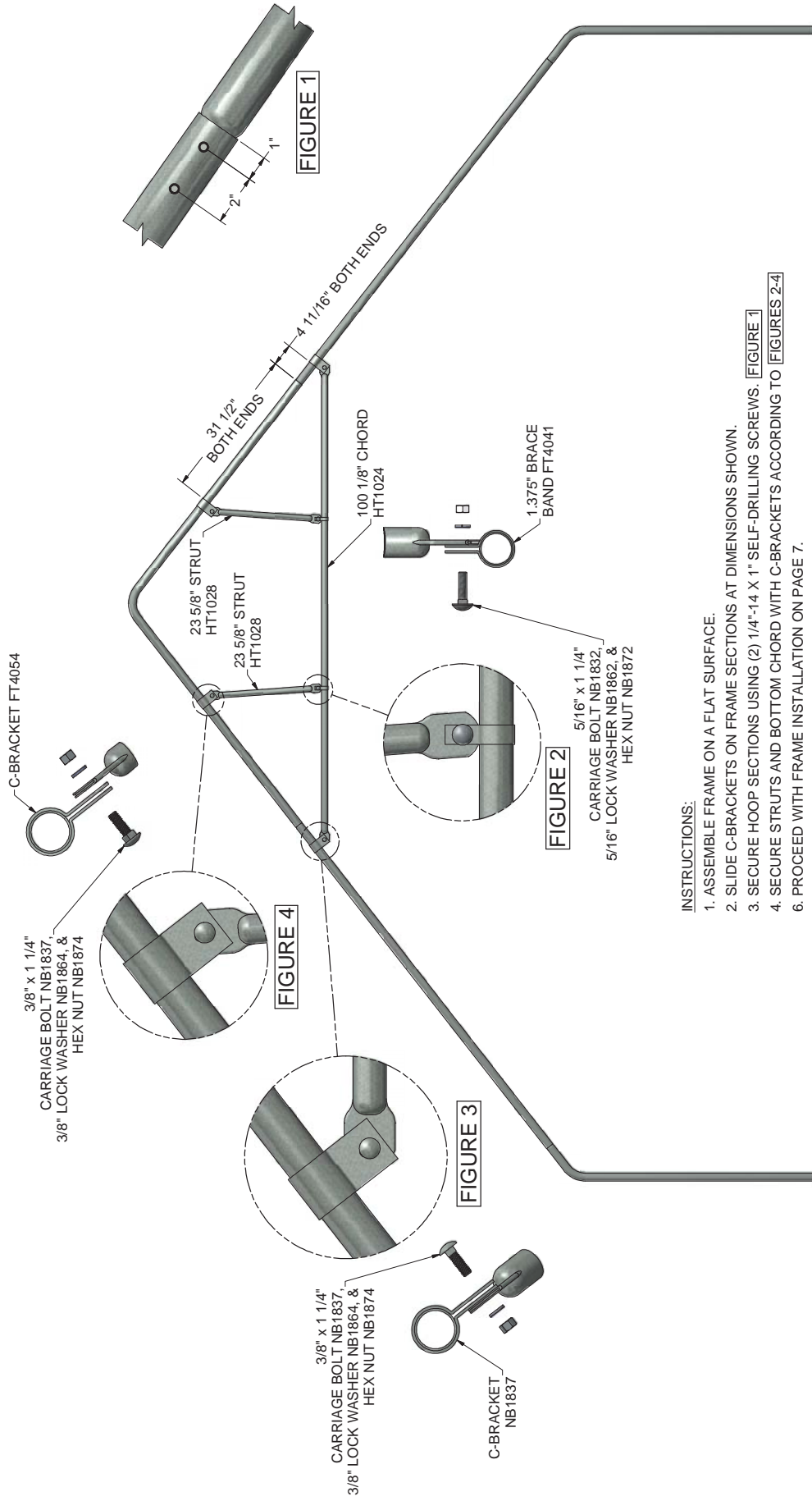
FRAME ASSEMBLY

Go to step 1 of the windbreak installation manual

1. ON THE MID-SECTION TUBE, PLACE A MARK 17 5/8" FROM THE SWAGED END OF TUBE. THIS MARK IS FOR THE PURLIN AND PURLIN FASTENER LOCATION.
2. ASSEMBLE EACH FRAME ON A FLAT SURFACE, OR BLOCK AS NECESSARY.
3. SECURE FRAME SECTIONS TOGETHER USING (2) 1/4"-14 X 1" SELF-DRILLING SCREWS INSTALLED AT EACH CONNECTION. SEE [FIGURE 3]
4. CAUTION: DO NOT INSTALL SCREWS IN A POSITION OF THE TUBE WHERE THE SCREWS CAN CONTACT THE POLY SHEETING COVER.
5. SEE PAGES 5 & 6 FOR TRUSS KIT INSTALLATION.



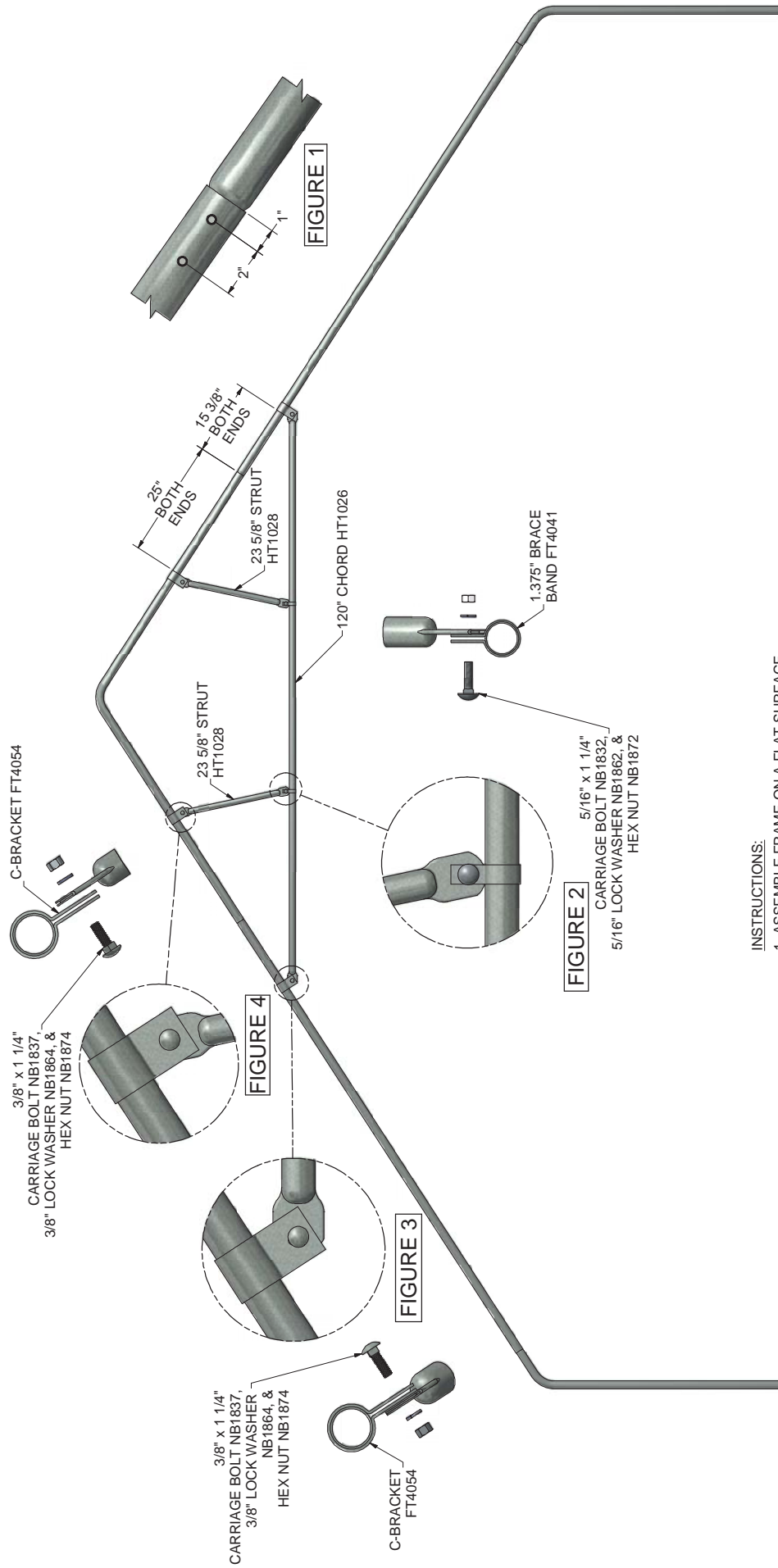
OPTIONAL 20ft GABLE TRUSS ASSEMBLY



INSTRUCTIONS:

1. ASSEMBLE FRAME ON A FLAT SURFACE.
2. SLIDE C-BRACKETS ON FRAME SECTIONS AT DIMENSIONS SHOWN.
3. SECURE HOOP SECTIONS USING (2) 1/4"-14 X 1" SELF-DRILLING SCREWS. **FIGURE 1**
4. SECURE STRUTS AND BOTTOM CHORD WITH C-BRACKETS ACCORDING TO **FIGURES 2-4**
6. PROCEED WITH FRAME INSTALLATION ON PAGE 7.

OPTIONAL 24ft GABLE TRUSS ASSEMBLY



INSTRUCTIONS:

1. ASSEMBLE FRAME ON A FLAT SURFACE.
2. SLIDE C-BRACKETS ON FRAME SECTIONS AT DIMENSIONS SHOWN.
3. SECURE HOOP SECTIONS USING (2) 1/4"-14 X 1" SELF-DRILLING SCREWS. [FIGURE 1]
4. SECURE STRUTS AND BOTTOM CHORD WITH C-BRACKETS ACCORDING TO [FIGURES 2-4]
6. PROCEED WITH FRAME INSTALLATION ON PAGE 7.

FRAME INSTALLATION

IMPORTANT



ALL COMPONENTS ATTACHED TO LONG SPEED HOOKS MUST BE MOUNTED ON THE OUTSIDE OF THE TABS. NEVER INSTALL COMPONENTS BETWEEN TABS.

1. RAISE TWO FRAME SECTIONS, SLIDE INSIDE GROUND STAKES UNTIL THEY REST ON THE SCREW INSTALLED IN THE GROUND STAKE INSTALLATION, AND FASTEN TO GROUND STAKES WITH TWO 1/4" x 1" SELF-DRILLING SCREWS. [FIGURE 1]

2. PLUMB FRAME SECTIONS AND ATTACH DIAGONAL BRACES USING LONG SPEED HOOKS. [FIGURE 2]

3. HOLDING THE PLAIN END OF THE FIRST PURLIN UNDER THE END FRAME, USE THE MARK ON THE MID-SECTION TUBE FOR PLACEMENT OF PURLIN. [FIGURE 3] ATTACH THE RIDGE PURLIN TO FRAME SECTIONS USING THE CROSS CONNECTORS. [FIGURE 4]

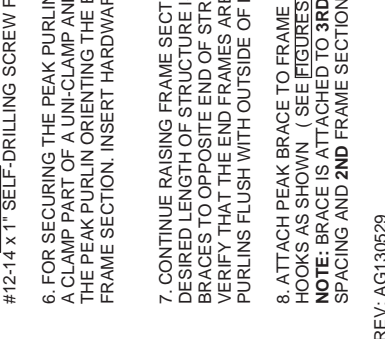
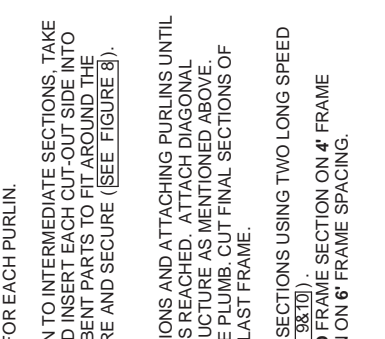
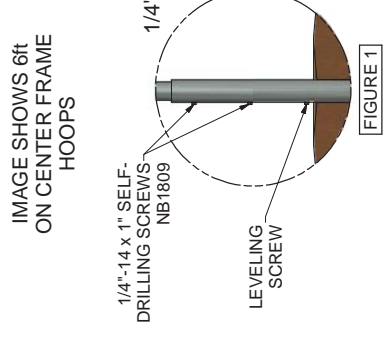
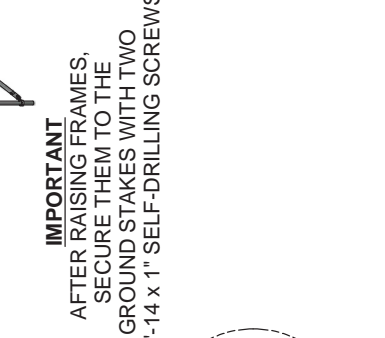
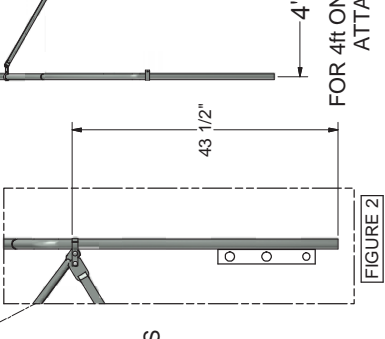
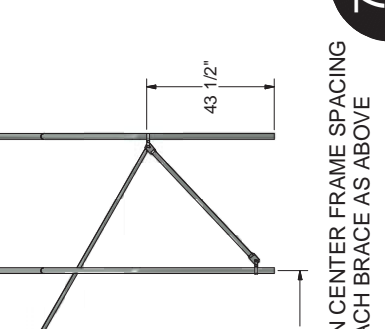
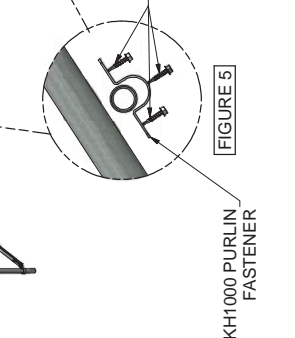
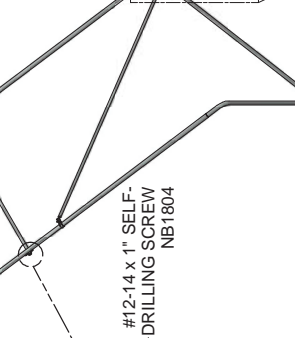
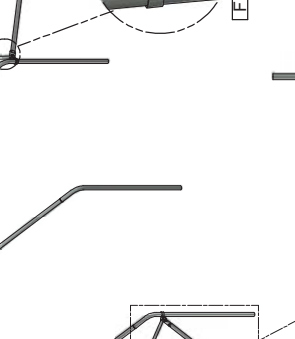
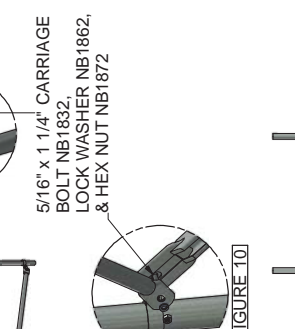
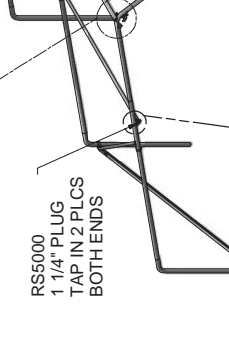
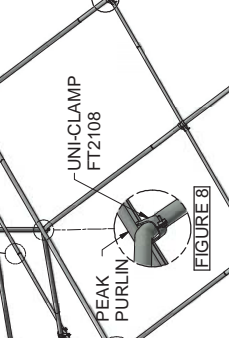
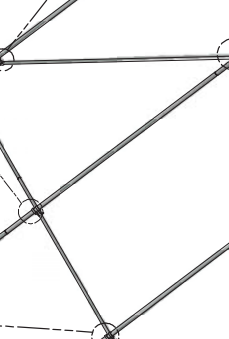
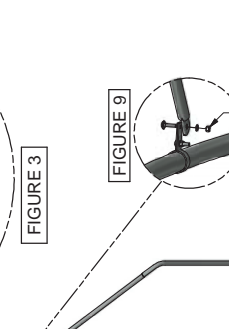
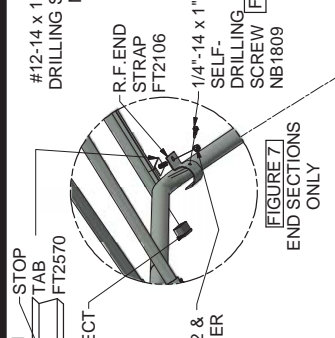
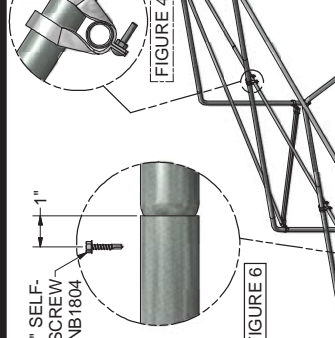
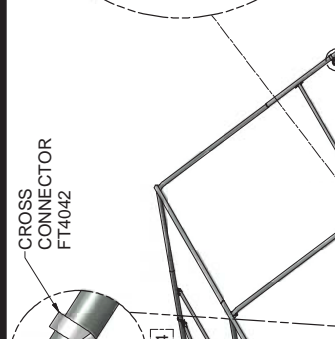
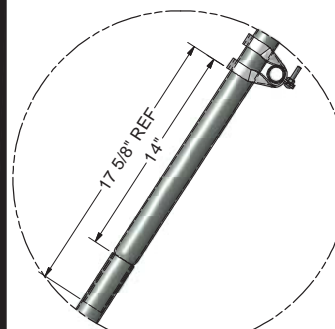
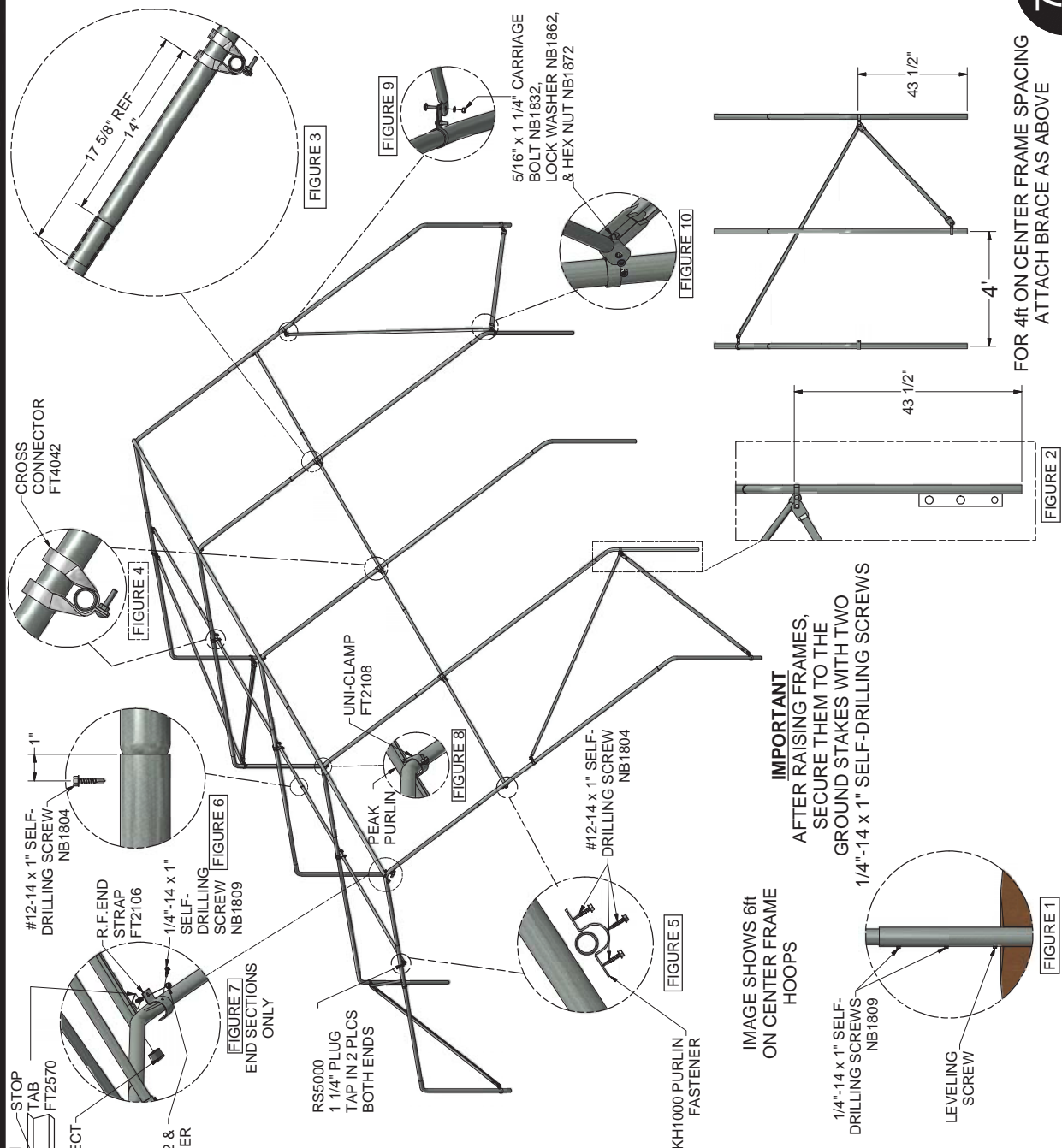
4. USE PURLIN FASTENERS TO SECURE THE PURLIN TO THE END FRAME SECTIONS ONLY. START WITH THE PLAIN END OF THE PURLIN FLUSH WITH THE OUTSIDE OF THE FRAME SECTION. SECURE THE PURLIN FASTENER WITH TWO #12-14 x 1" SELF-DRILLING SCREWS. SECURE THE PURLIN TO THE PURLIN FASTENER USING ONE #12-14 x 1" SELF-DRILLING SCREW AS SHOWN. [FIGURE 5] ATTACH PURLINS TOGETHER WITH ONE #12-14 x 1" SELF-DRILLING SCREW. [FIGURE 6] TAP THE ROUND CAPS INTO THE END OF THE PURLINS WHEN DONE.

5. FOR PEAK PURLIN, USE END STRAP AND STOP TAB TO SECURE THE PURLIN TO THE END FRAME SECTIONS ONLY. START WITH THE PLAIN END OF THE PURLIN FLUSH WITH THE OUTSIDE OF THE FRAME SECTION. SECURE THE PURLIN BY INSERTING THE STOP TAB INTO THE INSIDE OF THE ROLL-FORMED PURLIN (ONLY FITS ONE DIRECTION). SECURE THE PURLIN TO THE END STRAP USING A 5/16" NUT AND LOCK WASHER (STOP TAB IS SELF-TIGHTENING). DRIVE A #12-14 SELF-DRILLING SCREW THROUGH THE HOLE ON THE STRAP AND INTO THE FRAME SECTION (SEE [FIGURE 7]). ATTACH ADDITIONAL PURLINS TOGETHER WITH ONE #12-14 x 1" SELF-DRILLING SCREW FOR EACH PURLIN.

6. FOR SECURING THE PEAK PURLIN TO INTERMEDIATE SECTIONS, TAKE A CLAMP PART OF A UNI-CLAMP AND INSERT EACH CUT-OUT SIDE INTO THE PEAK PURLIN ORIENTING THE BENT PARTS TO FIT AROUND THE FRAME SECTION. INSERT HARDWARE AND SECURE (SEE [FIGURE 8]).

7. CONTINUE RAISING FRAME SECTIONS AND ATTACHING PURLINS UNTIL DESIRED LENGTH OF STRUCTURE IS REACHED. ATTACH DIAGONAL BRACES TO OPPOSITE END OF STRUCTURE AS MENTIONED ABOVE. VERIFY THAT THE END FRAMES ARE PLUMB. CUT FINAL SECTIONS OF PURLINS FLUSH WITH OUTSIDE OF LAST FRAME.

8. ATTACH PEAK BRACE TO FRAME SECTIONS USING TWO LONG SPEED HOOKS AS SHOWN (SEE FIGURES 9&10).
NOTE: BRACE IS ATTACHED TO 3RD FRAME SECTION ON 4' FRAME SPACING AND 2ND FRAME SECTION ON 6' FRAME SPACING.



FOR 4ft ON CENTER FRAME SPACING ATTACH BRACE AS ABOVE

END FRAME & SIDE RAIL HARDWARE INSTALLATION

1. ATTACH LOWER SIDE RAILS USING "U" CLAMPS AND 1 1/2" LAG SCREWS. [FIGURE 1] USE END STRAP TO ATTACH RAIL IN CORNER. [FIGURE 2]

2. THE UPPER SIDE RAILS ARE NOT NECESSARY FOR THE GROUND-TO-GROUND ROOF POLY APPLICATIONS. IF UPPER SIDE RAIL IS REQUIRED, USE 1.66" U-CLAMP & 1.66" END STRAP.

NOTE: IF STRUCTURE WAS PURCHASED WITH THE OPTIONAL DOOR, SEE PAGE 7 FOR FRAME INSTALLATION INSTRUCTIONS.

3. FOR CUSTOM DOOR OPENINGS, DETERMINE DOOR WIDTH AND HEIGHT. ATTACH AND PLUMB DOOR JAMBS USING FITTING AS SHOWN. [FIGURE 3] FOR POLY-TEX ROLL-UP END DOORS, FRAME OPENING TO 8'-0" x 8'-0"

4. SECURE BASE AND INTERMEDIATE RAILS USING "L" BRACKETS AS SHOWN. [FIGURE 4]

5. ATTACH FILLER BOARD ON CORNERS AS SHOWN. [FIGURE 5]

6. SECURE SPIKE ANCHOR BRACKET TO DOOR JAMBS USING WOODTITE SCREWS. DRIVE SPIKE THROUGH BRACKET TO SECURE VERTICAL FRAMING AND DOOR JAMB. [FIGURE 6]

*** NOTE: LUMBER SUPPLIED BY OTHERS ***

THE LUMBER MATERIAL LIST THAT POLY-TEX RECOMMENDS IS:

TREATED 2 x 6 MATERIAL 12' PIECES FOR THE LOWER RAILS - PERIMETER DISTANCE PLUS 10%.

OWNER'S CHOICE OF 2 x 4 OR 2 x 6, 12' PIECES FOR OTHER RAIL LOCATIONS - PERIMETER DISTANCE PLUS 10%.

ADDITIONALLY - TWO 10' PIECES FOR THE FILLER BOARDS AND THREE FOR EACH END. (NOT REQUIRED FOR OPTIONAL STEEL DOOR FRAME.)

3/8" X 2 1/2" CARRIAGE BOLT NB1841,
3/8" LOCK WASHER NB1864, &
3/8" HEX NUT NB1874

U-BRACKET
HY2026

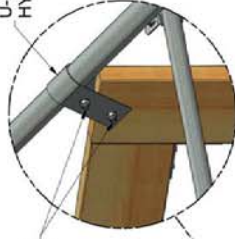


FIGURE 3
SHOWN FROM INSIDE
OF STRUCTURE

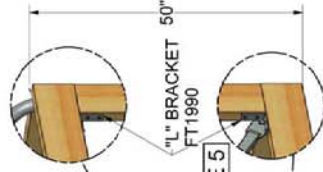


FIGURE 5

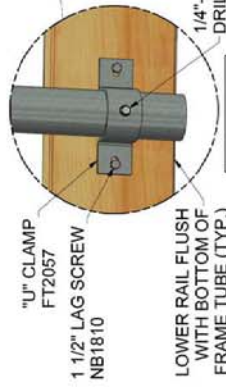
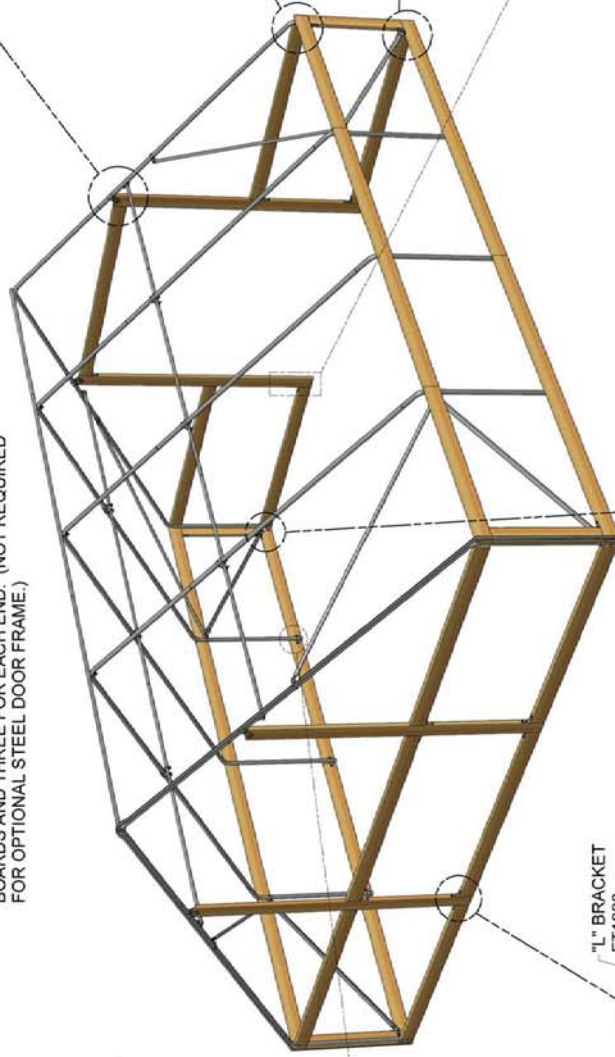


FIGURE 1

SHOWN FROM INSIDE
OF STRUCTURE

"L" BRACKET
FT1990

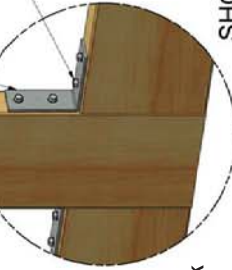


FIGURE 4

SHOWN FROM INSIDE
OF STRUCTURE

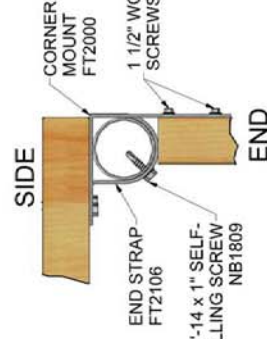


FIGURE 2

SHOWN FROM INSIDE
OF STRUCTURE
WITH BOTTOM OF
TUBE (TYP)

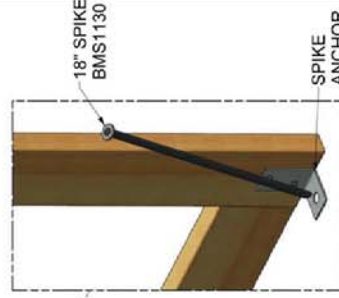


FIGURE 6

SHOWN FROM INSIDE
OF STRUCTURE

Go to Step 6 of the windbreak installation manual

Note: Do not attach lumber to the windbreak end wall

DOOR END FRAME INSTALLATION

OPTIONAL

PART IDENTIFICATION



1. SLIDE THE DOOR JAMBS OVER THE GROUND STAKES. ATTACH THE DOOR JAMBS TO THE FRAME OF STRUCTURE MAKING SURE THE JAMBS ARE PLUMB. [FIGURE 1] MEASURE 8'-0" FROM THE FINISHED GRADE, TO MARK THE LOCATION OF THE BOTTOM OF THE DOOR HEADER.
2. AFTER LEVELING THE DOOR HEADER USE TWO 'L' BRACKETS TO ATTACH THE DOOR HEADER TO THE DOOR JAMBS. [FIGURE 2]
3. OBTAIN WOOD END RAILS NOT SUPPLIED WITH FieldPro® AND DOOR JAMB PACKAGES. MEASURE THE DISTANCE BETWEEN THE SIDE OF THE FRAME AND THE DOOR JAMBS TO CUT THE WOOD TO SIZE. TO ATTACH THE WOOD END RAILS TO FRAME AND DOOR JAMBS, USE THE 'L' BRACKET AND WOODTITE SCREWS. [FIGURE 3]
4. INSTALL WIGGLE WIRE BASE AS PER DIAGRAM.
5. SECURE POLY SHEETING TO WIGGLE WIRE BASE WITH WIGGLE WIRE.
6. ATTACH DOOR 'J' HOOK TO JAMB USING TWO #12-14 x 1" SELF-DRILLING SCREWS APPROXIMATELY 42" FROM BOTTOM OF DOOR JAMB. [FIGURE 4] THIS IS USE TO HOLD THE DOOR CRANK IN PLACE WHEN THE DOOR IS ROLLED UP.

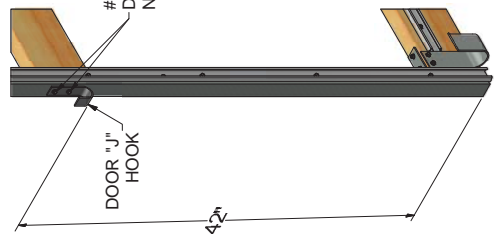
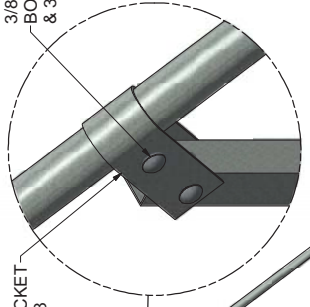
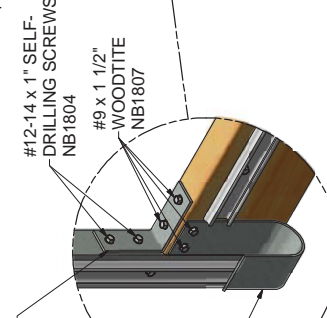
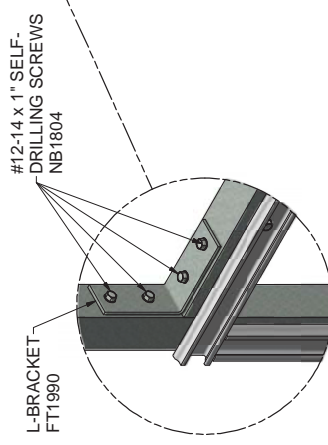
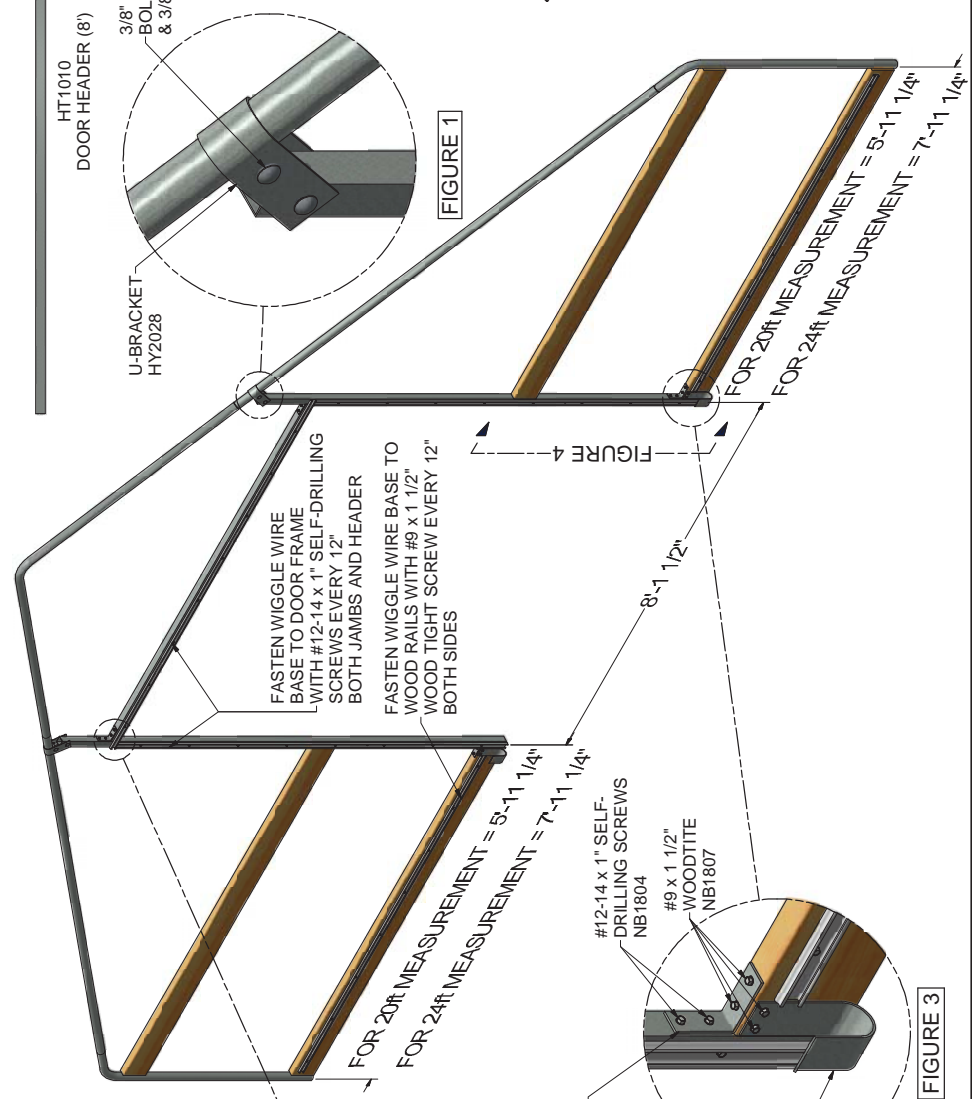


FIGURE 1

FIGURE 2

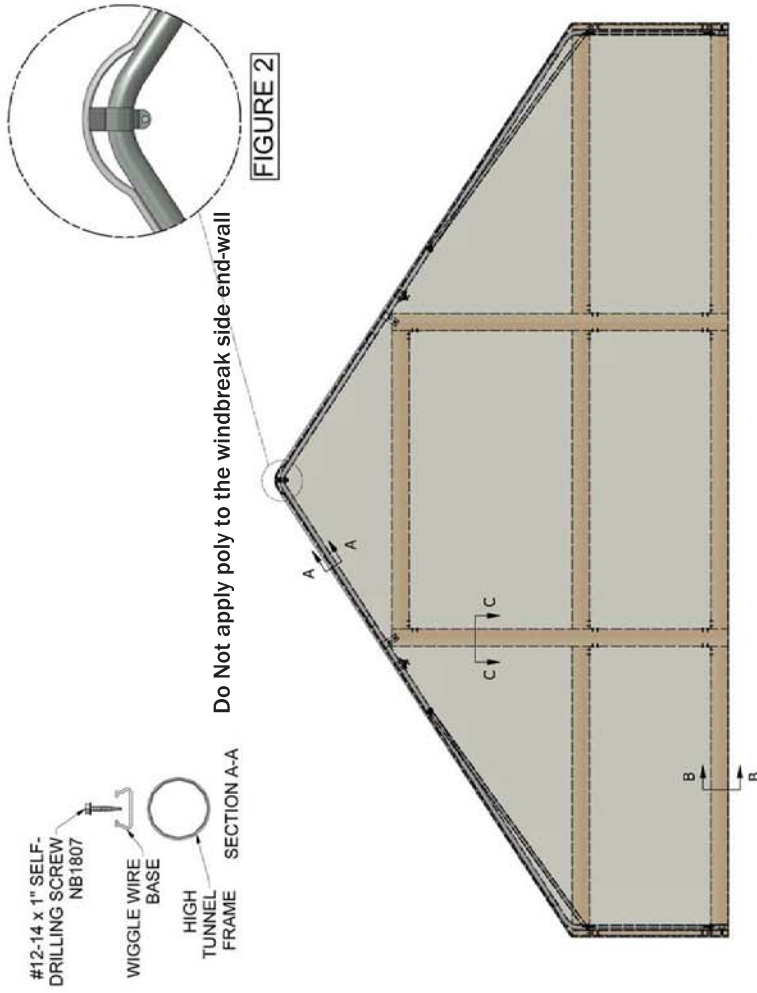
FIGURE 3

FIGURE 4

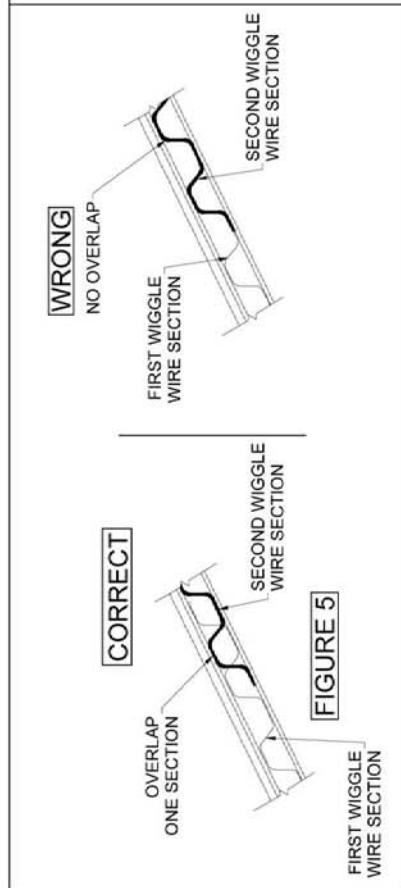
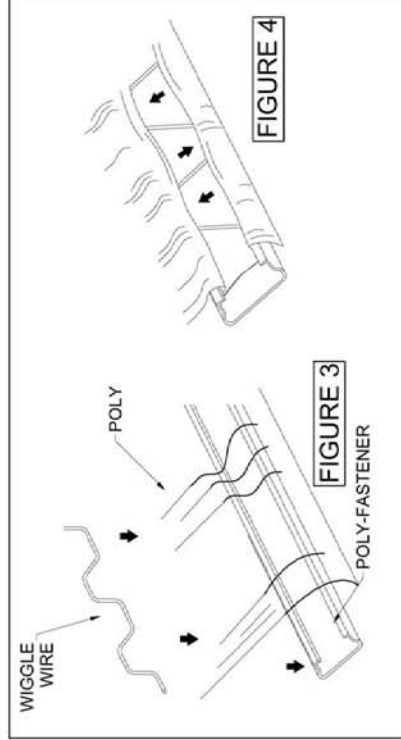
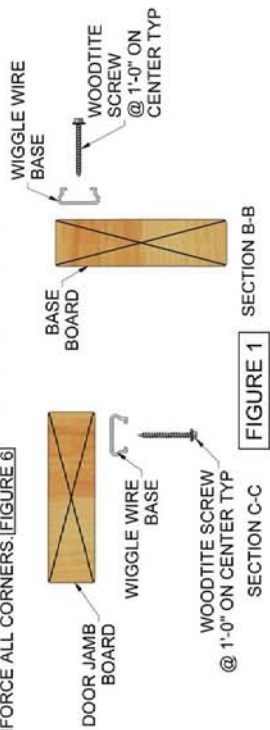
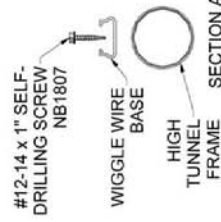
END WALL POLY INSTALLATION

NOTE: REFER TO PAGE 7 FOR OPTIONAL METAL JAMB.

1. ATTACH WIGGLE WIRE BASE ON THE OUTSIDE FLUSH WITH THE TOP OF THE BASE BOARD AND THE EDGES OF THE DOOR JAMB. [FIGURE 1]
2. INSTALL WIGGLE WIRE BASE OVER END FRAMES BEGINNING AT THE BOTTOM OF THE WOOD FRAMING ON EACH SIDE. INSTALL WIGGLE WIRE BASE OVER TOP OF THE END WALL FITTINGS. (DO NOT INTERRUPT WIGGLE WIRE BASE AT FITTINGS) [FIGURE 2]
3. AFTER THE WIGGLE WIRE BASE IS ATTACHED, POSITION THE POLY FILM OVER THE HIGH TUNNEL END FRAME BEING SURE TO HAVE EQUAL EXCESS FILM ON ALL SIDES. [FIGURE 3]
4. THEN INSTALL THE WIGGLE WIRE USING A SIDE TO SIDE MOTION WHILE SEATING THE WIRE INTO THE BASE. [FIGURE 4] WHEN INSTALLING WIGGLE WIRE, BE SURE TO OVERLAP ONE SECTION AT JOINTS. [FIGURE 5]
5. IF THE POLY IS INSTALLED ON A COOL DAY, IT WILL EXPAND AS THE TEMPERATURE WARMS. IT MIGHT BE NECESSARY TO RETIGHTEN THE SHEET OF PLASTIC. AFTER THE WIGGLE WIRE HAS BEEN INSTALLED, PRESS ALL WIGGLE WIRE FIRMLY INTO BASE TO ENSURE IT HAS BEEN SEATED PROPERLY.
6. AFTER ALL WIGGLE WIRE IS INSTALLED, CUT AND INSTALL ADDITIONAL 12" PIECES OF WIRE TO REINFORCE ALL CORNERS. [FIGURE 6]



Do Not apply poly to the windbreak side end-wall



ROLL-UP CURTAIN INSTALLATION

1. INSTALL WIGGLE WIRE BASE, CORNER POLY PANEL, AND WIGGLE WIRE TO SECURE PANEL.
2. TO INSTALL ROLL UP CURTAIN POLY, EXTEND CURTAIN POLY ABOUT 2" BEYOND FRAME AND APPROXIMATELY 2" ABOVE UPPER RAIL. KEEP AS EVEN AS POSSIBLE. [FIGURE 1] ATTACH POLY TO WIGGLE WIRE BASE WITH WIGGLE WIRE SIMILAR TO FIGURE 4 ON PAGE 8. AFTER POLY IS SECURE, MEASURE DOWN 56" FROM TOP RAIL AND PLACE A SERIES OF MARKS ON POLY USING A MARKING PEN.
3. ASSEMBLE 9'-8" ROLL UP TUBE SECURE SECTIONS TOGETHER WITH #12 x 1" SELF-DRILLING SCREWS. [FIGURE 2]
4. USE THE MARK TO ALIGN ROLL UP TUBE WHILE SNAPPING ON TUBE CLIPS. FASTEN CURTAIN TO TUBE USING CLIPS EVERY 3" KEEPING TUBE STRAIGHT WITH PLACEMENT MARKS. [FIGURE 3]
5. DIG A 5" DIA HOLE 8" DEEP FOR THE HT GEARBOX VERTICAL.
6. ATTACH ROLL-UP UNIT AND GEARBOX EXTENSION TO TUBE. [FIGURE 4] INSERT GEARBOX TUBE THROUGH UNIT AND SET THE PLATE OF THE VERTICAL INTO THE GROUND UNTIL 12" OF TUBE EXTENDS ABOVE UPPER RAIL. BACKFILL THE HOLE.
7. RETAIN OTHER COMPONENTS FOR INSTALLATION AFTER ROOF POLY.

PART IDENTIFICATION

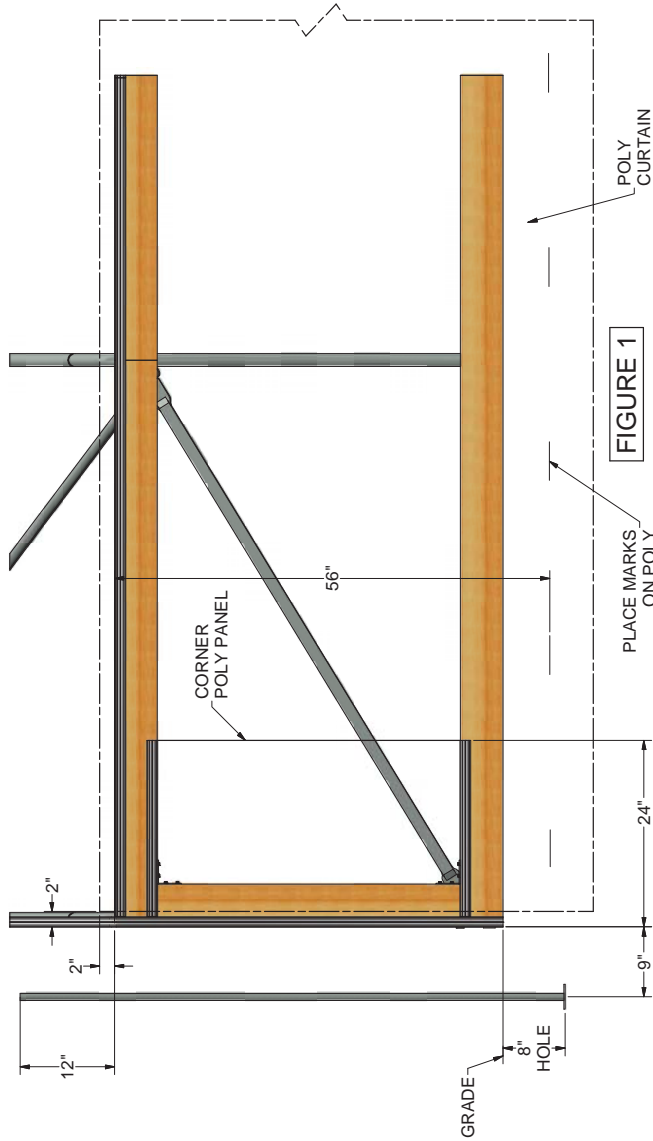
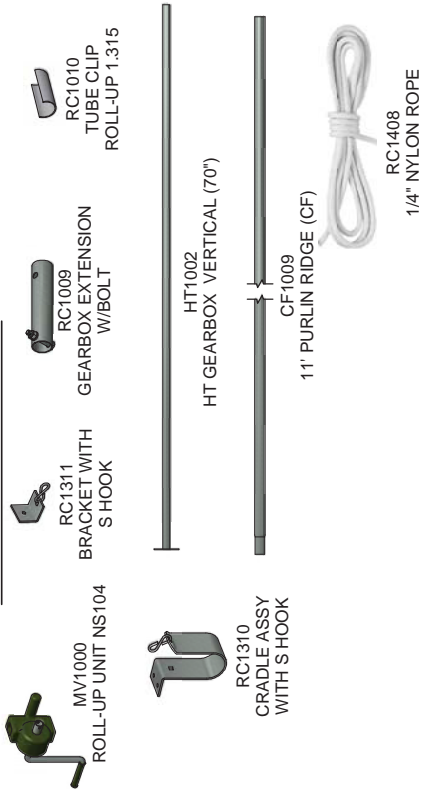


FIGURE 1

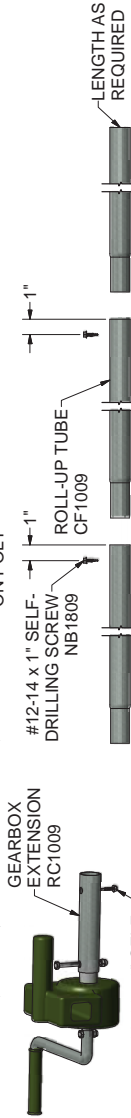


FIGURE 2

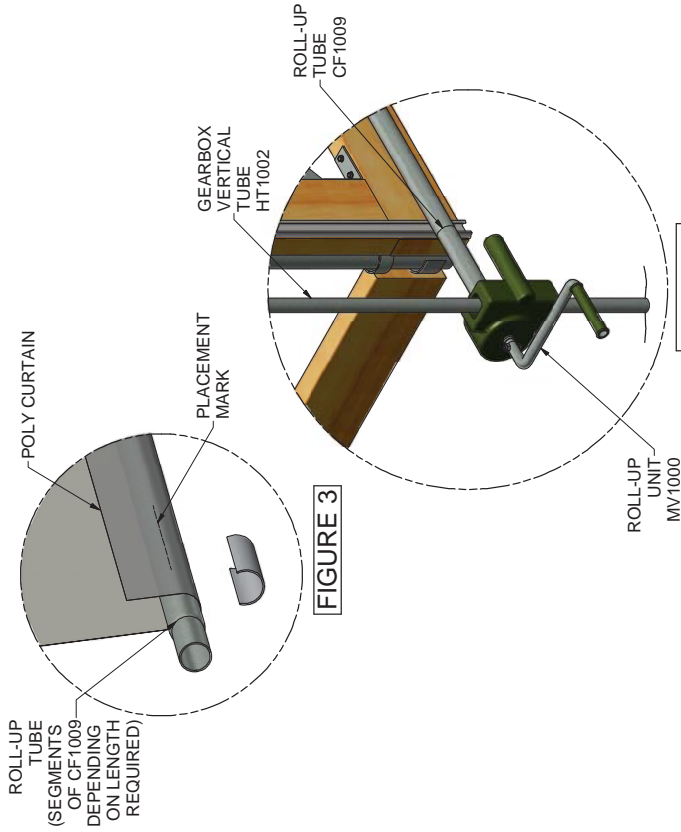


FIGURE 3

FIGURE 4

INSTALLATION OF ROOF POLY

FOR STRUCTURES WITHOUT SIDE WALL VENTILATION, PROCEED TO "INSTALLATION OF GROUND TO GROUND POLY" PAGE 13. WIGGLE WIRE WILL BE INSTALLED IN THE SAME WIGGLE BASE AS THE ROLL-UP CURTAIN FROM PAGE 14.

TRY TO PICK A CALM DAY. IF IT IS WINDY, IT'S ALMOST IMPOSSIBLE TO HANDLE THE PLASTIC.

LAY OUT THE WIGGLE WIRE AROUND THE PERIMETER OF THE STRUCTURE SO THEY ARE HANDY. UNROLL THE POLY ON THE GROUND ALONG THE LENGTH OF THE STRUCTURE. BE SURE YOU HAVE EQUAL OVERHANG AT BOTH ENDS OF THE GREENHOUSE.

PLACE ONE WORKER AT POINT (A) AND ONE AT POINT (B). IT HELPS TO HAVE ANOTHER WORKER INSIDE THE FieldPro® AT POINT (C). ON A LADDER, TO HELP CARRY THE POLY OVER.

ONCE THE POLY IS IN POSITION, BEGIN INSTALLING WIGGLE WIRE SECTIONS AT POINT (1). COMPLETE THIS SIDE OF THE GREENHOUSE, USING THE EDGE OF THE POLY AS A GUIDE (3" TO 6" OVERHANG IS ADEQUATE).

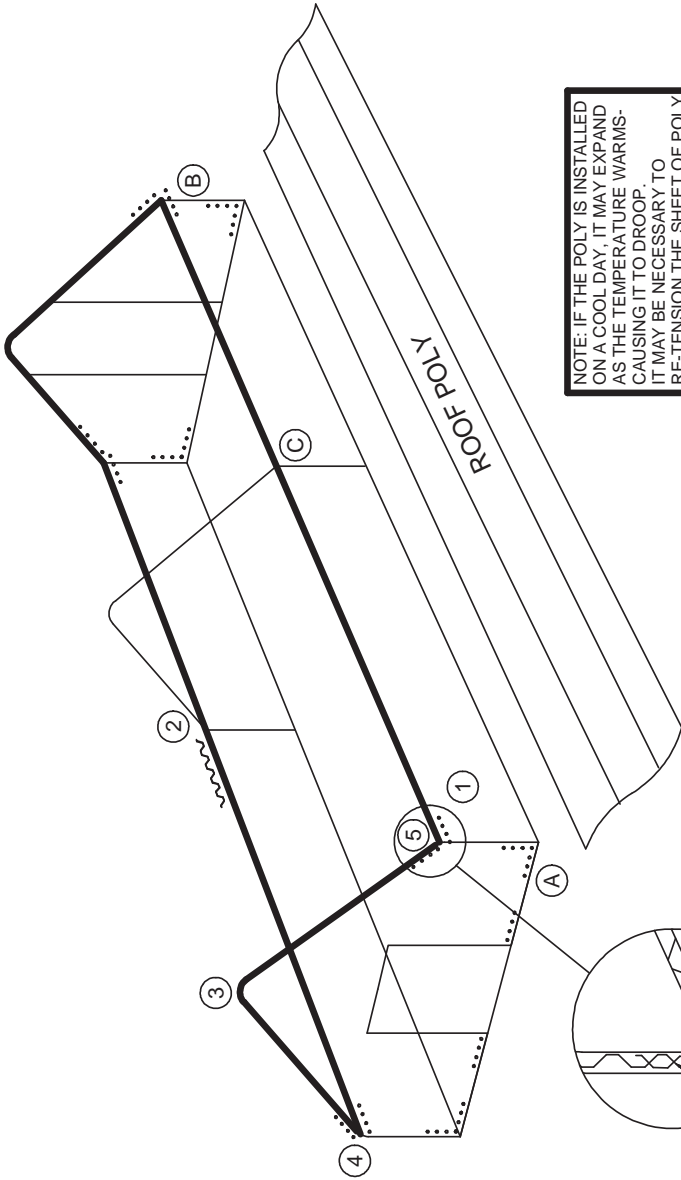
GO TO THE OTHER SIDE AND INSTALL A WIGGLE WIRE SECTION AT POINT (2) (CENTER), AND FAN OUT FROM THERE. COMPLETE THIS SIDE.

*** HELPFUL HINT:** TO AVOID POLY DROOPING BETWEEN BOWS, INSTRUCT A HELPER TO TENSION THE POLY ONE SECTION AWAY FROM PERSON INSTALLING THE WIGGLE WIRE (YOU WILL NOTICE THE WRINKLES DISAPPEAR WHEN THIS METHOD IS USED). WHEN THE PERSON WHO IS INSTALLING THE WIGGLE WIRE MEETS THE PERSON TENSIONING THE POLY, THE TENSIONER CAN MOVE TO THE NEXT BOW.

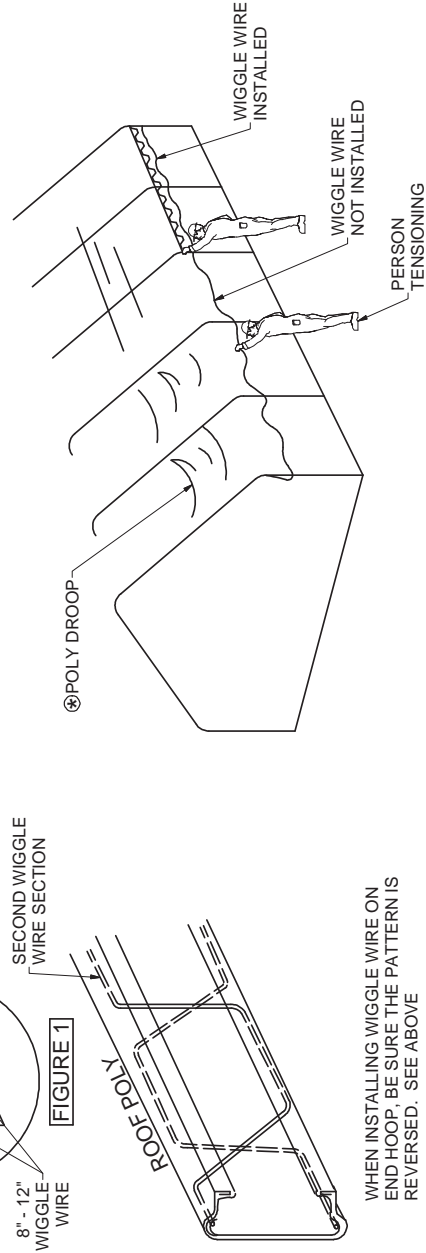
ALSO, AFTER ALL WIGGLE WIRE HAS BEEN INSTALLED, USING A BLUNT OBJECT, PRESS ALL WIGGLE WIRE FIRMLY INTO BASE TO ENSURE IT HAS BEEN SEATED PROPERLY.

THEN, STARTING IN THE CENTER OF THE END HOOP (3), BEGIN INSTALLING WIGGLE WIRE SECTIONS DOWN TO POINT (4). GO BACK TO POINT (3), AND INSTALL WIGGLE WIRE SECTIONS TO POINT (5). DO THIS ON BOTH END FRAME SECTIONS.

AFTER THIS IS DONE, CUT REMAINING PIECES TO APPROXIMATELY 12" LENGTHS. USE THESE IN THE CORNERS (DOTTED LINES) TO REINFORCE THE TOP COVER AND END POLY (SEE [FIGURE 1]).



NOTE: IF THE POLY IS INSTALLED ON A COOL DAY, IT MAY EXPAND AS THE TEMPERATURE WARMS. IT MAY BE NECESSARY TO RE-TENSION THE SHEET OF POLY AT A LATER DATE.



WHEN INSTALLING WIGGLE WIRE ON END HOOP, BE SURE THE PATTERN IS REVERSED. SEE ABOVE

INSTALLATION OF GROUND TO GROUND POLY

FOR STRUCTURES WITHOUT SIDE WALL VENTILATION, PROCEED TO "INSTALLATION OF GROUND TO GROUND POLY" PAGE 10. WIGGLE WIRE WILL BE INSTALLED IN THE SAME WIGGLE BASE AS THE ROLL-UP CURTAIN FROM PAGE 8.

TRY TO PICK A CALM DAY. IF IT IS WINDY, IT'S ALMOST IMPOSSIBLE TO HANDLE THE PLASTIC.

LAY OUT THE WIGGLE WIRE AROUND THE PERIMETER OF THE STRUCTURE SO THEY ARE HANDY. UNROLL THE POLY ON THE GROUND ALONG THE LENGTH OF THE STRUCTURE. BE SURE YOU HAVE EQUAL OVERHANG AT BOTH ENDS OF THE GREENHOUSE.

PLACE ONE WORKER AT POINT (A) AND ONE AT POINT (B). IT HELPS TO HAVE ANOTHER WORKER INSIDE THE FieldPro® AT POINT (C), ON A LADDER, TO HELP CARRY THE POLY OVER.

ONCE THE POLY IS IN POSITION, BEGIN INSTALLING WIGGLE WIRE SECTIONS AT POINT (1). COMPLETE THIS SIDE OF THE GREENHOUSE, USING THE EDGE OF THE POLY AS A GUIDE (3" TO 6" OVERHANG IS ADEQUATE).

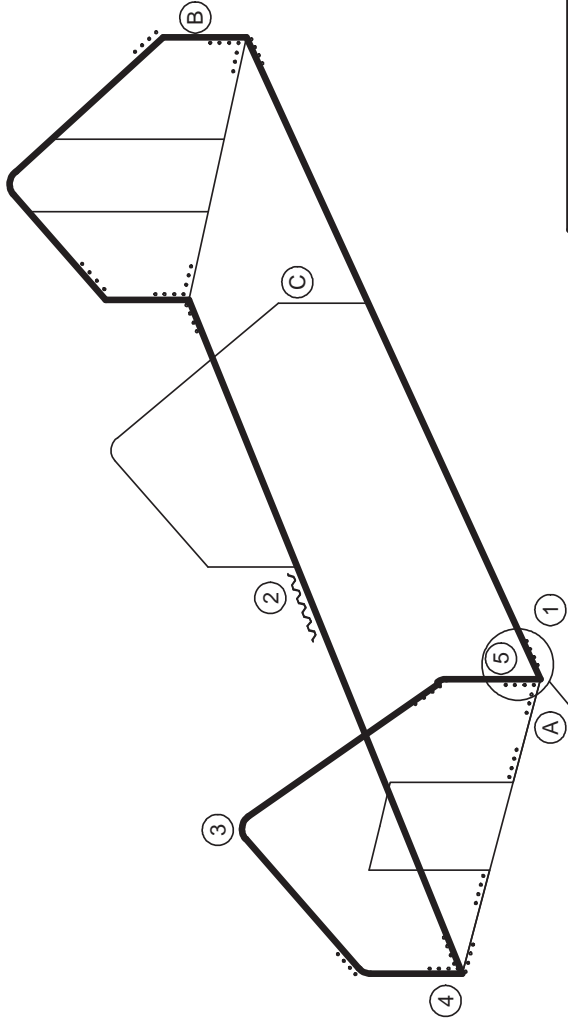
GO TO THE OTHER SIDE AND INSTALL A WIGGLE WIRE SECTION AT POINT (2) (CENTER), AND FAN OUT FROM THERE. COMPLETE THIS SIDE.

⊕ HELPFUL HINT: TO AVOID POLY DROOPING BETWEEN BOWS, INSTRUCT A HELPER TO TENSION THE POLY ONE SECTION AWAY FROM PERSON INSTALLING THE WIGGLE WIRE (YOU WILL NOTICE THE WRINKLES DISAPPEAR WHEN THIS METHOD IS USED). WHEN THE PERSON WHO IS INSTALLING THE WIGGLE WIRE MEETS THE PERSON TENSIONING THE POLY, THE TENSIONER CAN MOVE TO THE NEXT BOW.

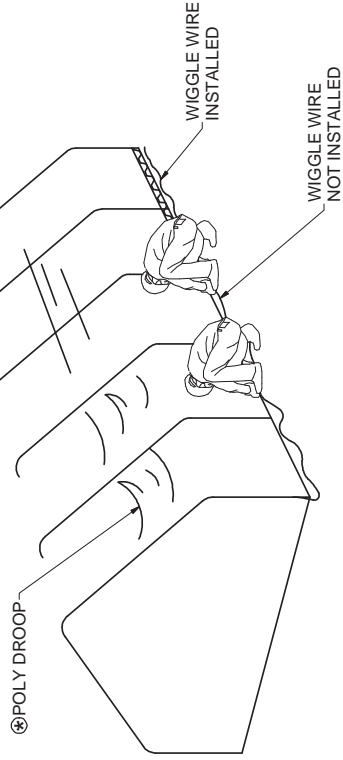
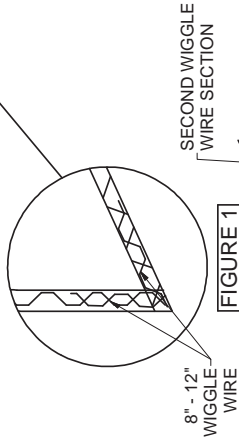
ALSO, AFTER ALL WIGGLE WIRE HAS BEEN INSTALLED, USING A BLUNT OBJECT, PRESS ALL WIGGLE WIRE FIRMLY INTO BASE TO ENSURE IT HAS BEEN SEATED PROPERLY.

THEN, STARTING IN THE CENTER OF THE END HOOP (3), BEGIN INSTALLING WIGGLE WIRE SECTIONS DOWN TO POINT (4). GO BACK TO POINT (3), AND INSTALL WIGGLE WIRE SECTIONS TO POINT (5). DO THIS ON BOTH END FRAME SECTIONS.

AFTER THIS IS DONE, CUT REMAINING PIECES TO APPROXIMATELY 12" LENGTHS. USE THESE IN THE CORNERS (DOTTED LINES) TO REINFORCE THE TOP COVER AND END POLY (SEE FIGURE 1).



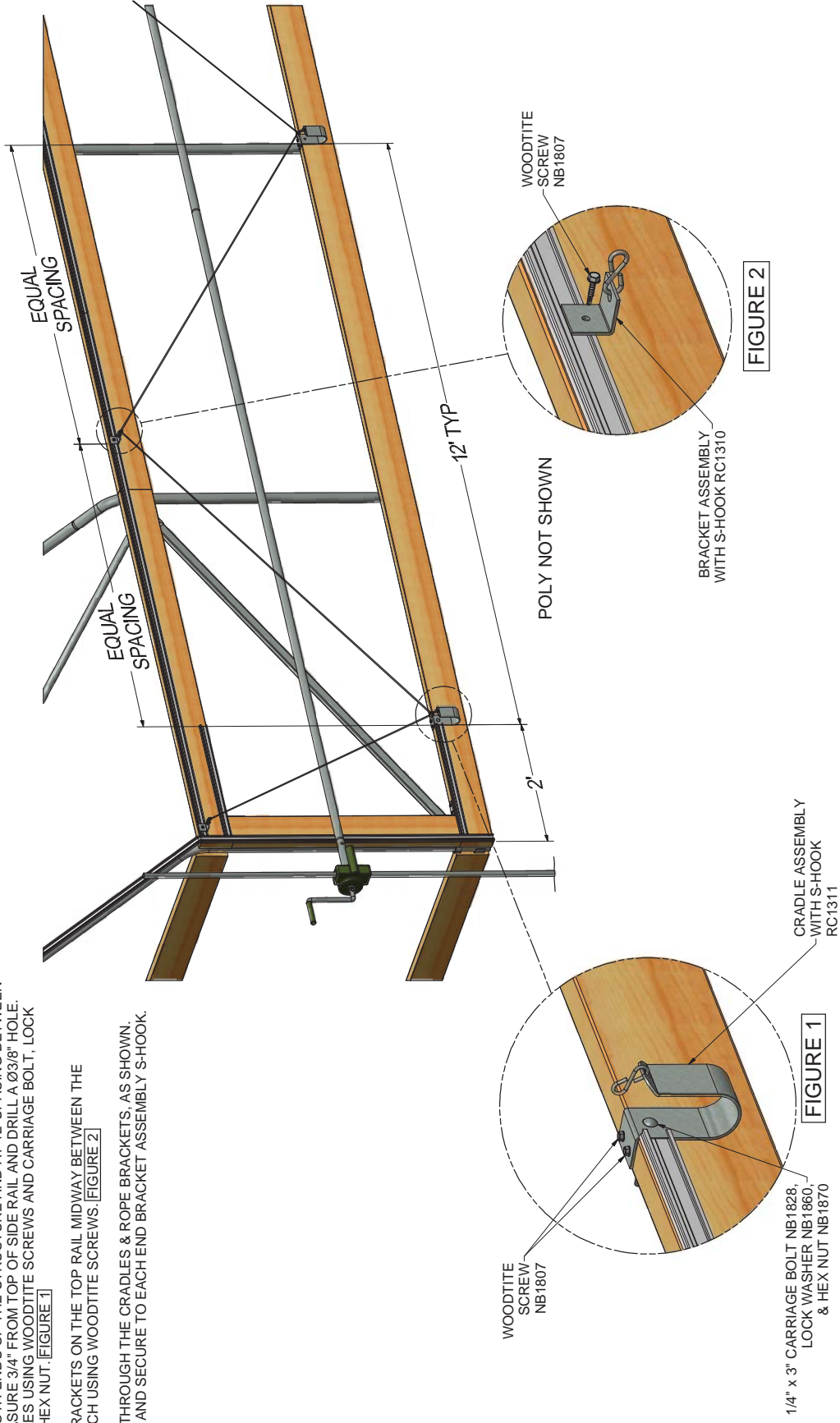
NOTE: IF THE POLY IS INSTALLED ON A COOL DAY, IT MAY EXPAND AS THE TEMPERATURE WARMS, CAUSING IT TO DROOP. IT MAY BE NECESSARY TO RE-TENSION THE SHEET OF POLY AT A LATER DATE.



WHEN INSTALLING WIGGLE WIRE ON END HOOP, BE SURE THE PATTERN IS REVERSED. SEE ABOVE

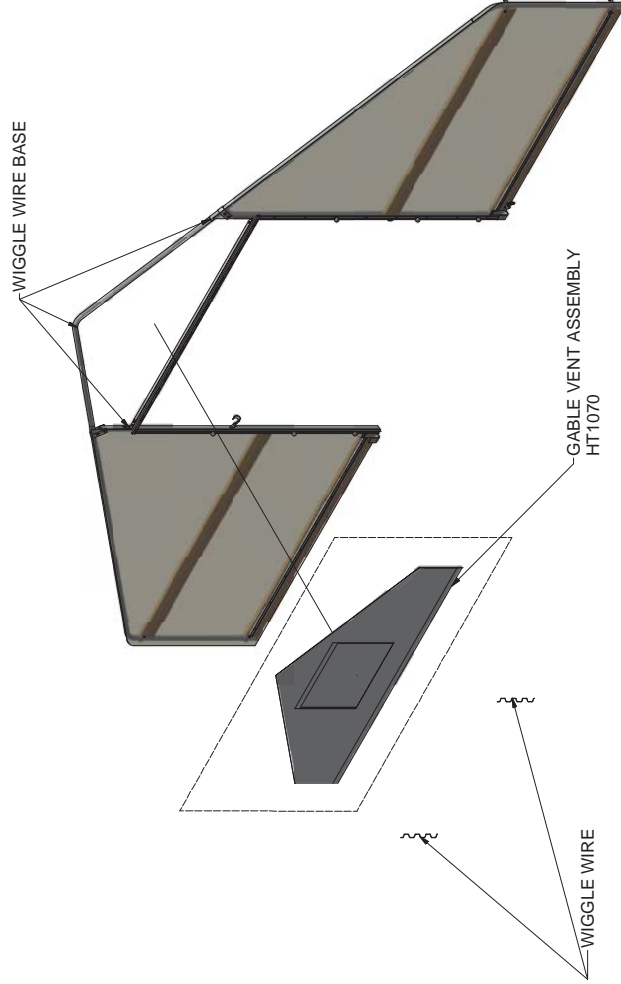
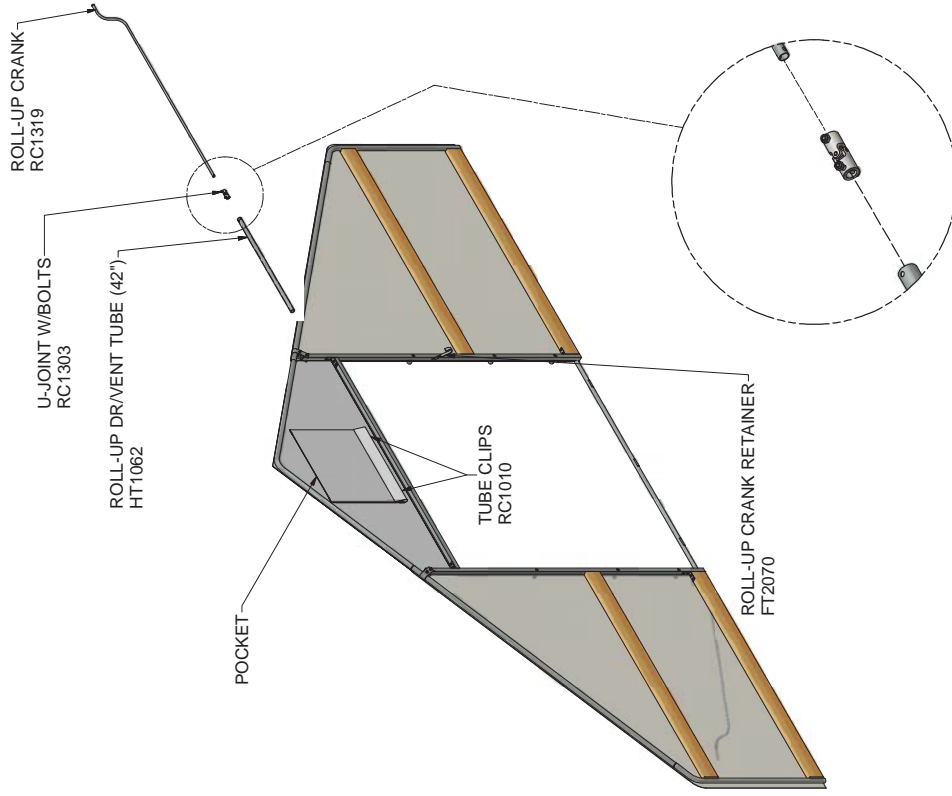
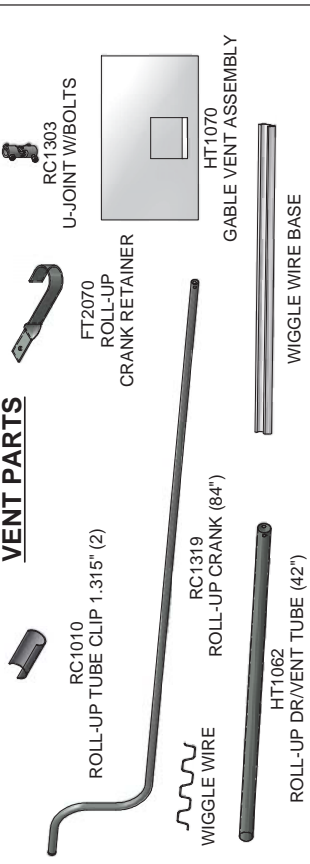
ROLL-UP CURTAIN RETAINER INSTALLATION

1. RAISE CURTAIN ABOUT HALFWAY UP BY TURNING THE HANDLE ON THE ROLL-UP UNIT. LOCATE AND INSTALL CRADLES 24" FROM END OF LOWER SIDE RAIL ON BOTH ENDS OF THE STRUCTURE AND AT 12' SPACING BETWEEN CRADLES. MEASURE 3/4" FROM TOP OF SIDE RAIL AND DRILL A Ø3/8" HOLE. ATTACH CRADLES USING WOODTITE SCREWS AND CARRIAGE BOLT, LOCK WASHER, AND HEX NUT. **FIGURE 1**
2. PLACE ROPE BRACKETS ON THE TOP RAIL MIDWAY BETWEEN THE CRADLES ATTACH USING WOODTITE SCREWS. **FIGURE 2**
3. THREAD ROPE THROUGH THE CRADLES & ROPE BRACKETS, AS SHOWN. TIGHTEN ROPE AND SECURE TO EACH END BRACKET ASSEMBLY S-HOOK.



OPTIONAL VENT INSTALLATION

VENT PARTS



1. INSTALL WIGGLE WIRE BASE TO VENT OPENING WHERE SHOWN.
2. ATTACH HT1070 VENT ASSEMBLY PANEL TO END OF FIELD/PRO ABOVE DOOR OPENING.
3. INSTALL WIGGLE WIRE ON SIDES, TOP AND BOTTOM.
4. TRIM HT1070 VENT ASSEMBLY PANEL TO APPROXIMATE SIZE OF THE OPENING ABOVE THE DOOR.

5. SLIP HT1062 ROD END INTO POCKET.

6. CLIP ROLL-UP TUBE CLIP OVER ENDS OF POCKET ON HT1070 VENT ASSEMBLY OVER ROD.

7. ATTACH KNUCKLE RC1301 INTO ROD RC1319 AND TIGHTEN BOLTS.

8. ATTACH FT2070 ROLL-UP CRANK RETAINER ONTO DOOR VERTICAL APPROXIMATELY WHERE SHOWN AND SET CRANK HANDLE INTO RETAINER.

DOOR INSTALLATION

OPTIONAL

1. LAY OUT CLEAR REINFORCED POLY DOOR ON A FLAT SURFACE.
 2. ASSEMBLE THE ROLL-UP TUBE WITH SNAP & TUBE BOTTOM EXTENSION. [FIGURE 1] INSERT ROLL-UP TUBE INTO ROLL-UP DOOR SLEEVE.
 3. SECURE THE POLY DOOR TO THE DOOR TUBE USING ROLL-UP TUBE CLIPS APPROXIMATELY EVERY 36". [FIGURE 2]
 4. SET THE ROLL-UP DOOR WITH TUBE IN THE CRADLE.
 5. LIFT THE FREE END OF THE POLY DOOR MATERIAL TO THE TOP OF THE DOOR FRAME AND SECURE WITH WIGGLE WIRE. BE SURE TO CENTER THE DOOR OVER THE OPENING. [FIGURE 3]
- NOTE: IT IS IMPORTANT THE ROLL-UP DOOR TUBE IS STILL RESTING IN THE CRADLES DURING THIS PROCEDURE.
6. USING DOOR GROMMETS AS A VERTICAL GUIDE, DRILL 6 - 3/8" HOLES THROUGH DOOR JAMBS AND WIGGLE WIRE BASE. INSERT CARRIAGE BOLT WITH THREADS TO THE OUTSIDE AND TIGHTEN WITH LOCK WASHER & HEX NUT. [FIGURE 4] INSTALL BALL KNOBS AND ATTACH BUNGEE CORDS OVER BALL KNOBS [FIGURE 5]
 7. INSTALL U-JOINT INTO ROLL-UP DOOR TUBE AND SECURE USING (1) 5/16" x 1 3/4" HEX BOLT AND LOCK NUT THROUGH THE HOLE IN THE DOOR TUBE. [FIGURE 6]
 8. ATTACH ROLL-UP CRANK TO THE OTHER END OF THE U-JOINT USING 5/16" x 1 1/2" HEX BOLT AND LOCK NUT. [FIGURE 6]
 9. CHECK OPERATION OF DOOR BY UNHOOKING BUNGEE CORDS AND ROLLING UP THE DOOR TO TOP GROMMET ELEVATION, AND SECURING THE DOOR OPEN BY INSERTING A BUNGEE BALL CORD THROUGH EACH GROMMET AND WRAPPING THE CORD AROUND THE ROLLED-UP DOOR. INSERT BALL THROUGH LOOP OF CORD TO SECURE.

Return to the windbreak instruction manual to install the rest of the windbreak



FIGURE 3

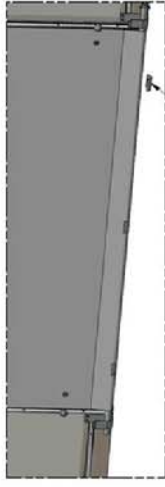


FIGURE 2

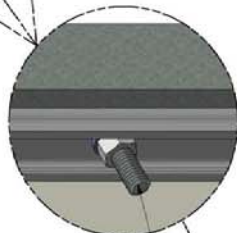
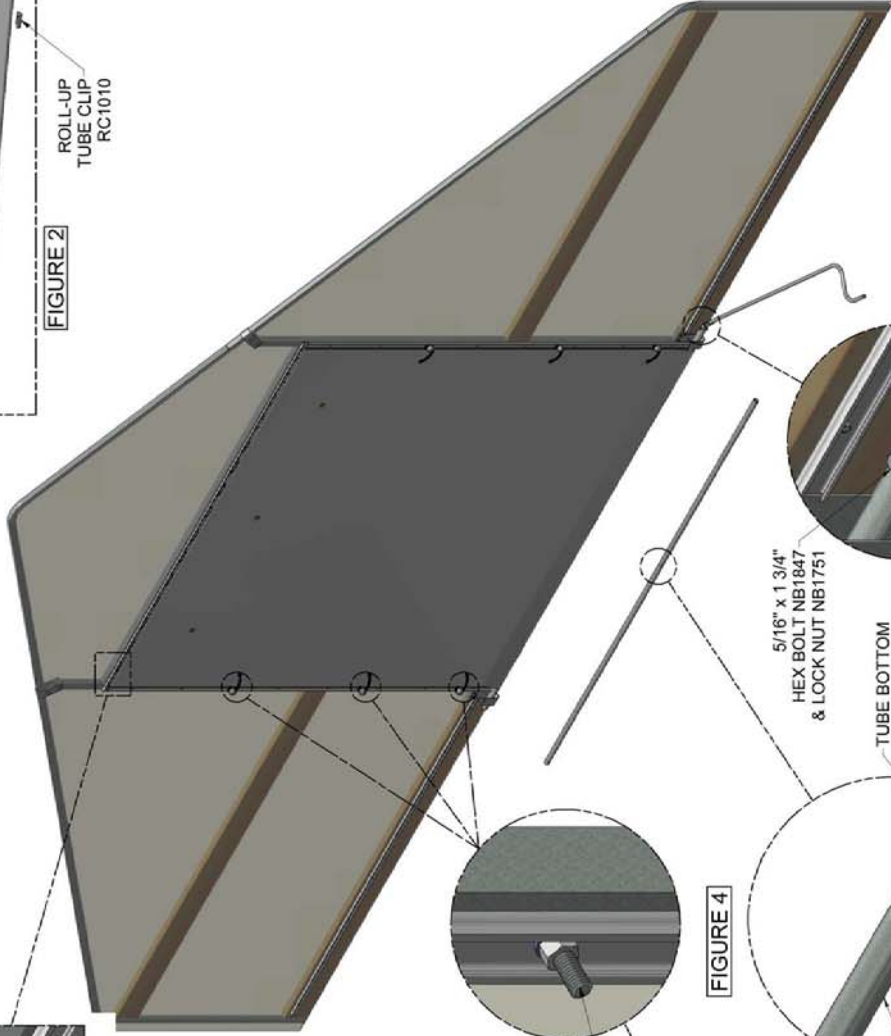


FIGURE 4

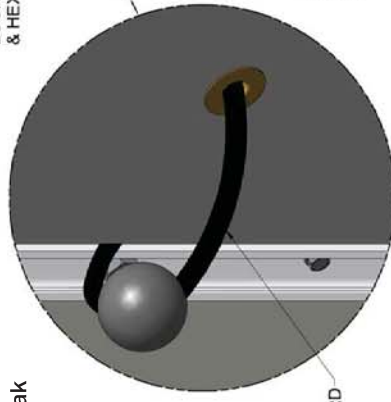


FIGURE 5



FIGURE 6



FIGURE 1

FIGURE 6

Parts Specific to the Windbreak Attachment

Part No.	Name	Description	Quantity
01	Single Swivel Socket	Simplified Building's Model C50B-77. These connect the windbreak purlins and diagonal frame members.	14
02	Single Socket Tee	Simplified Building's Model 10-7. These connect the High tunnel sidewall to the windbreak sidewall frame members.	4
03	Adjustable Side Outlet Tee	Simplified Building's Model 19-7. These connect the horizontal frame members to the windbreak point.	2
04	Corner Swivel Socket	Simplified Building's Model C52-777. This connects the diagonal frame member to the windbreak point.	1
05	Two Socket Cross	Simplified Building's Model 26-7. These connect the vertical sidewall members to the horizontal high tunnel sidewall frame members.	4
06	Purlin 1.1	Lowest purlin on the left hand side of windbreak	1
07	Purlin 1	Lowest purlin on the right hand side of windbreak	1
08	Purlin 2.1	Middle purlin on the left hand side of windbreak	1
09	Purlin 2	Middle purlin on the right hand side of windbreak	1
10	Purlin 3.1	Top purlin on the left hand side of windbreak	1
11	Purlin 3	Top purlin on the right hand side of windbreak	1
12	Windbreak Sidewall Frame	These make up the horizontal pieces of the windbreak sidewall	8
13	WindbreakDiagonal Purlin	These make up the diagonal frame pieces of the windbreak	2

Start in the 20'-24- FieldPro Installation Manual. Indicators (*) will show where to use this manual**

1) Cut one HP3501 - HT PEAK SECTION in half as shown in Figure 1.



Figure 1: Cutting one Peak Section in Half.

2) Grind one of the halves so that there is an approximate radius to allow for maximum contact when assembling to another peak section as shown in Figure 2.

3) Weld the half of the peak section onto the center of another whole peak section as shown in Figure 2.



Figure 2: Welding the cut section to a full section

- 4) Correctly place the 6 purlin swivel pipe fittings as you assemble one frame with the welded peak section. DO NOT SCREW THEM IN, simply make sure they are on the correct portion of the frame section. Also slide on the 4 single socket tees but DO NOT screw them into the frame yet. This will be done later when installing the purlins. The correct assembly is shown below in Figure 3. This section will be the endwall section with the windbreak attachment.

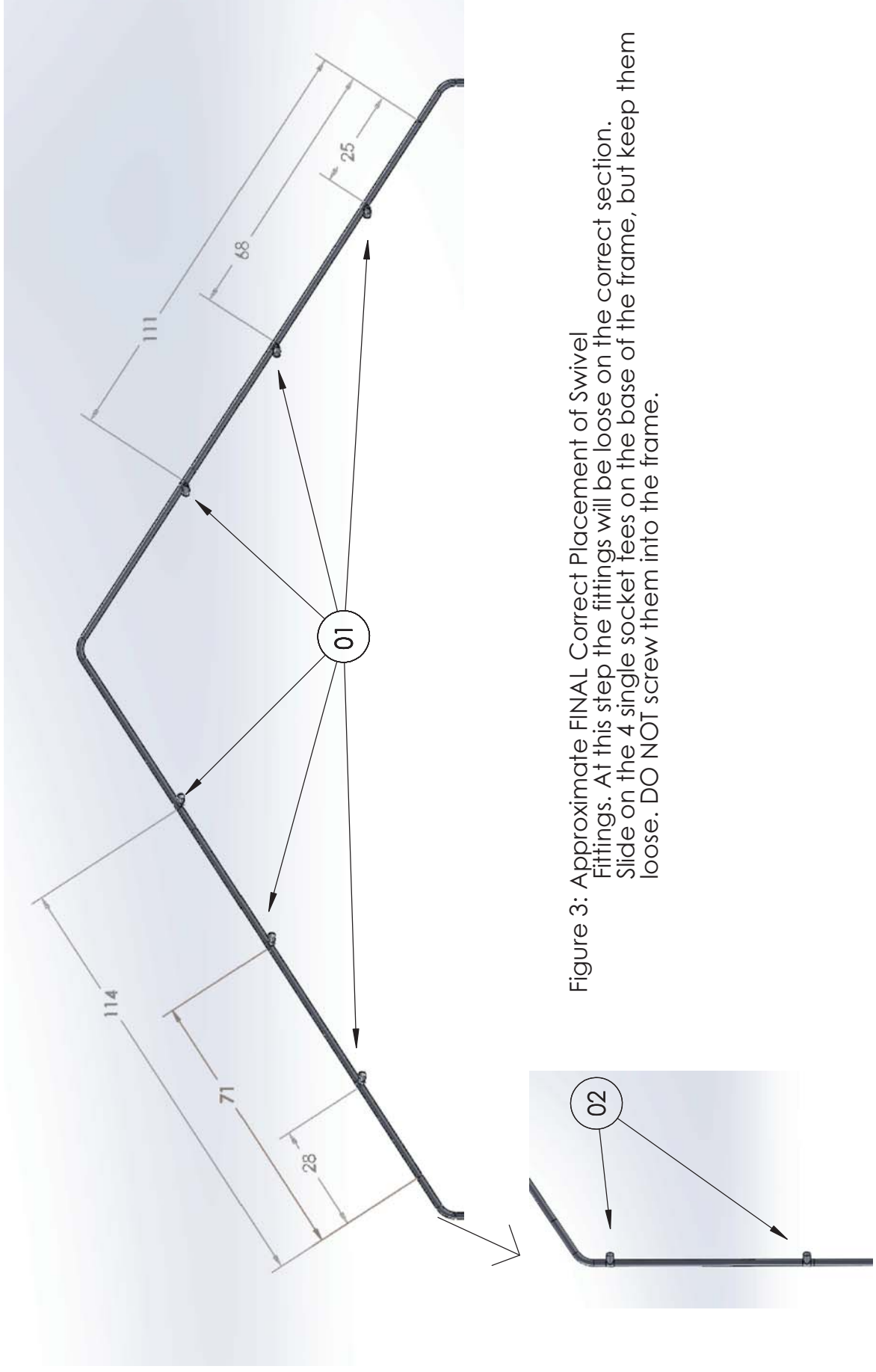


Figure 3: Approximate FINAL Correct Placement of Swivel Fittings. At this step the fittings will be loose on the correct section. Slide on the 4 single socket tees on the base of the frame, but keep them loose. DO NOT screw them into the frame.

- 5) Return to Step 1 of Frame Assembly in the High Tunnel instruction manual to install the main body of the high tunnel.

6) Place the 7 swivel pipe fittings and 2 corner Tee fittings **WITHOUT** screwing the fittings down as you assemble the half frame onto the welded peak section. They should be left loose on the correct section of the frame. Screwing the purlin fittings in will be done later when the pulins are installed to ensure accurate placement. The correct assembly is shown below in Figure 4. This section will be the point of the windbreak attachment.

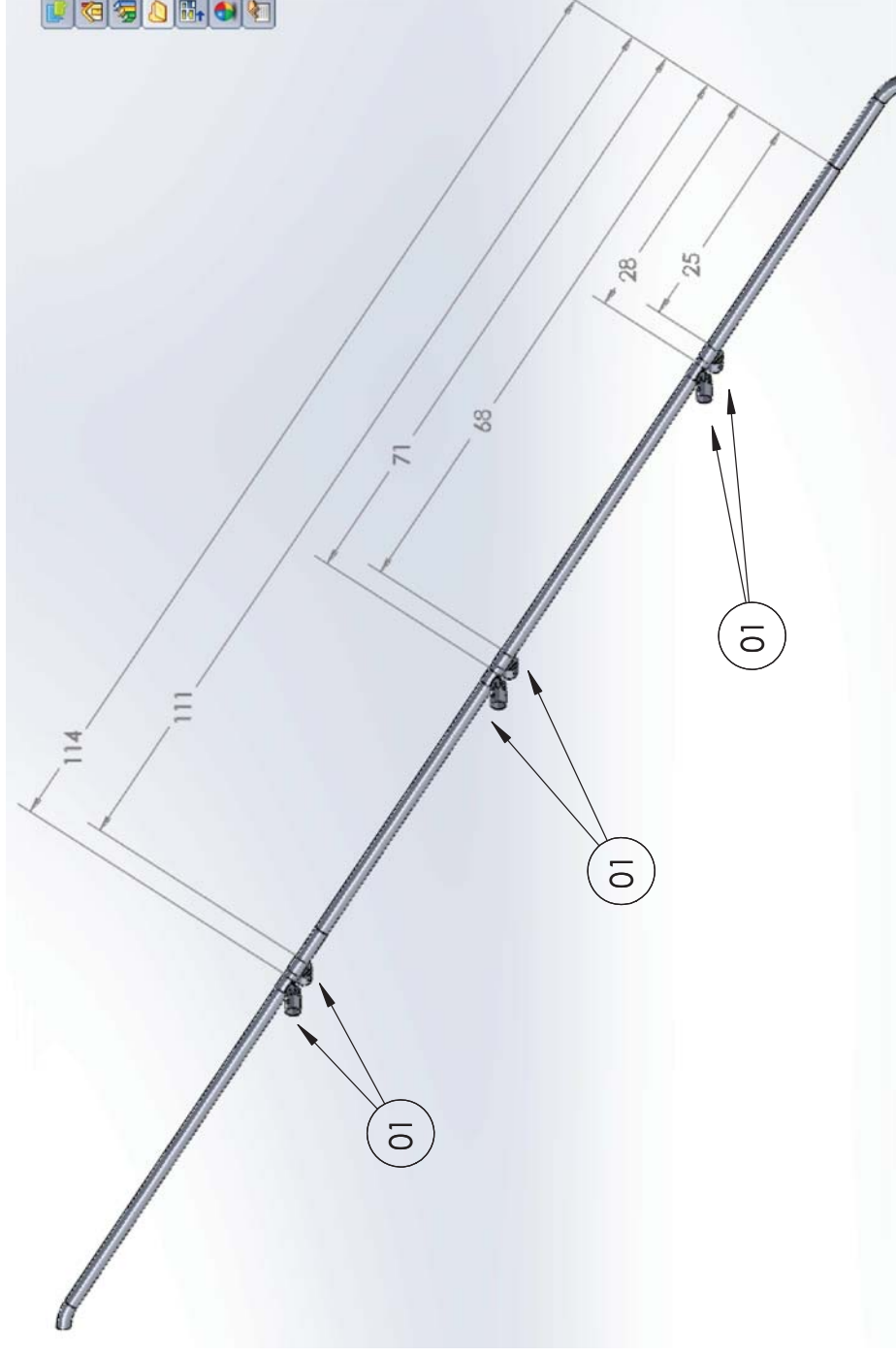
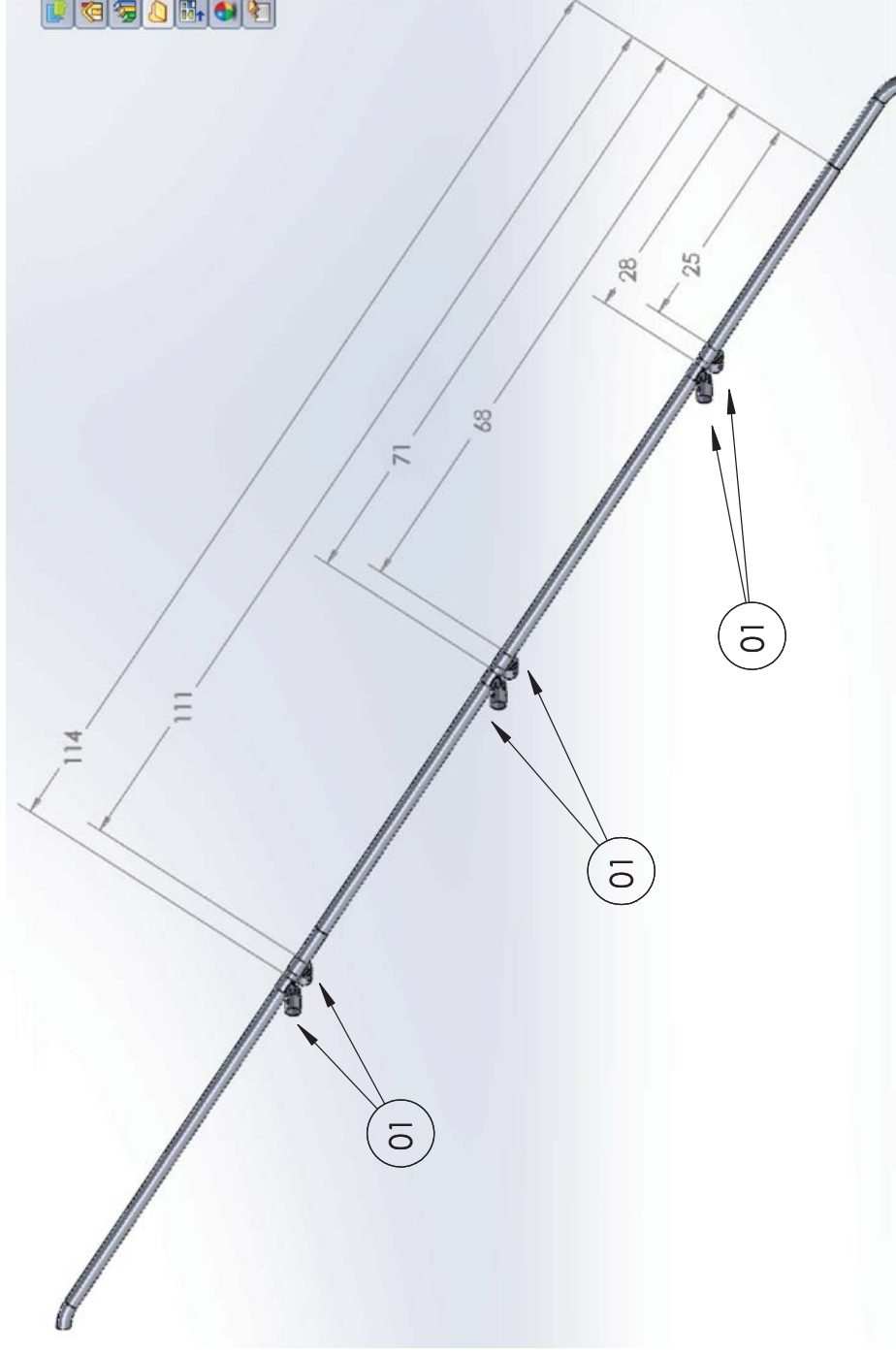


Figure 4: General placement for the point frame sections purlin pipe fittings. DO NOT screw the fittings into the frame yet.

- 7) Determine the correct placement of the windbreak point's anchor by connecting the point section with the welded peak. Mark the spot and remove the point section. Similar to the anchor placement in the high tunnel instruction manual, use string between end frame anchors and point anchor to determine the position of the two side anchors. These side anchors should be exactly half-way between the point and the end wall anchor as shown below.

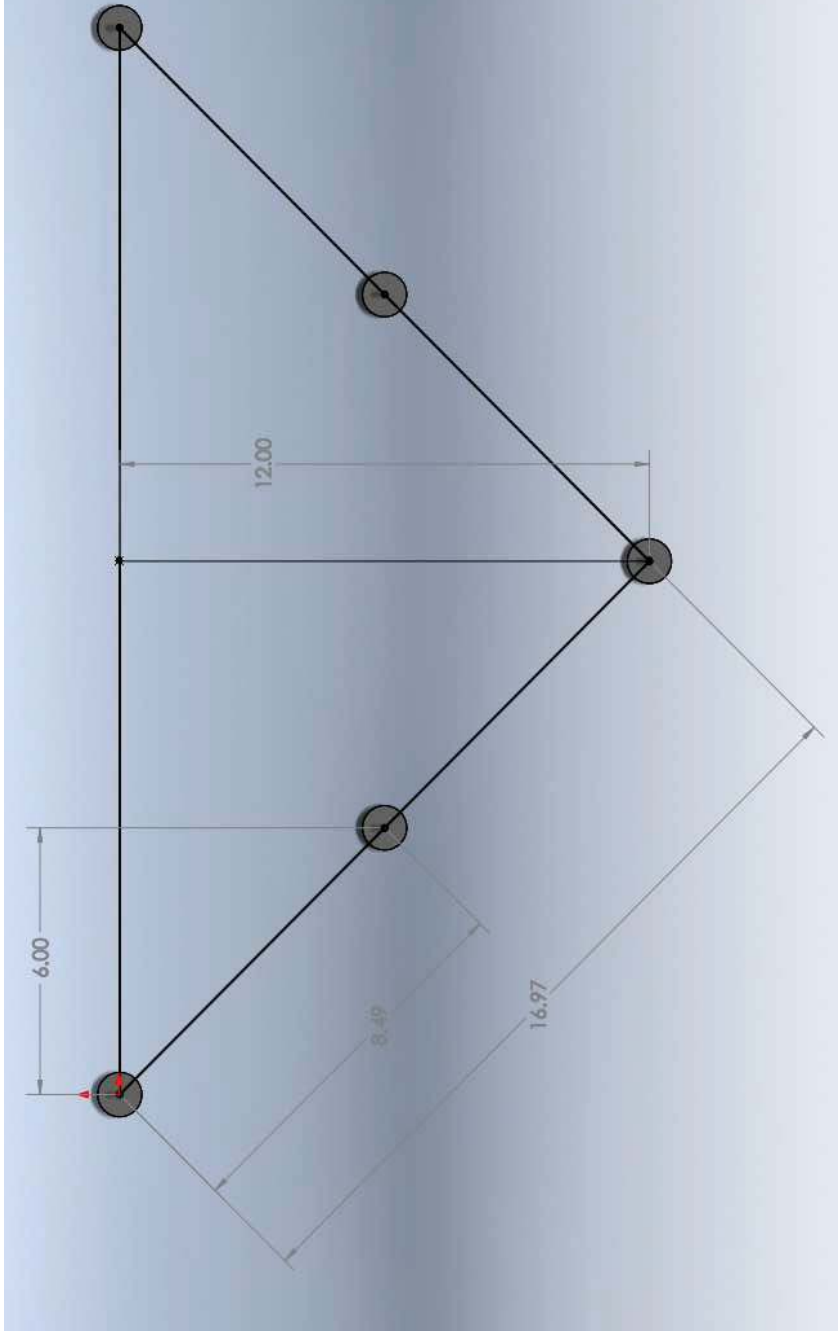
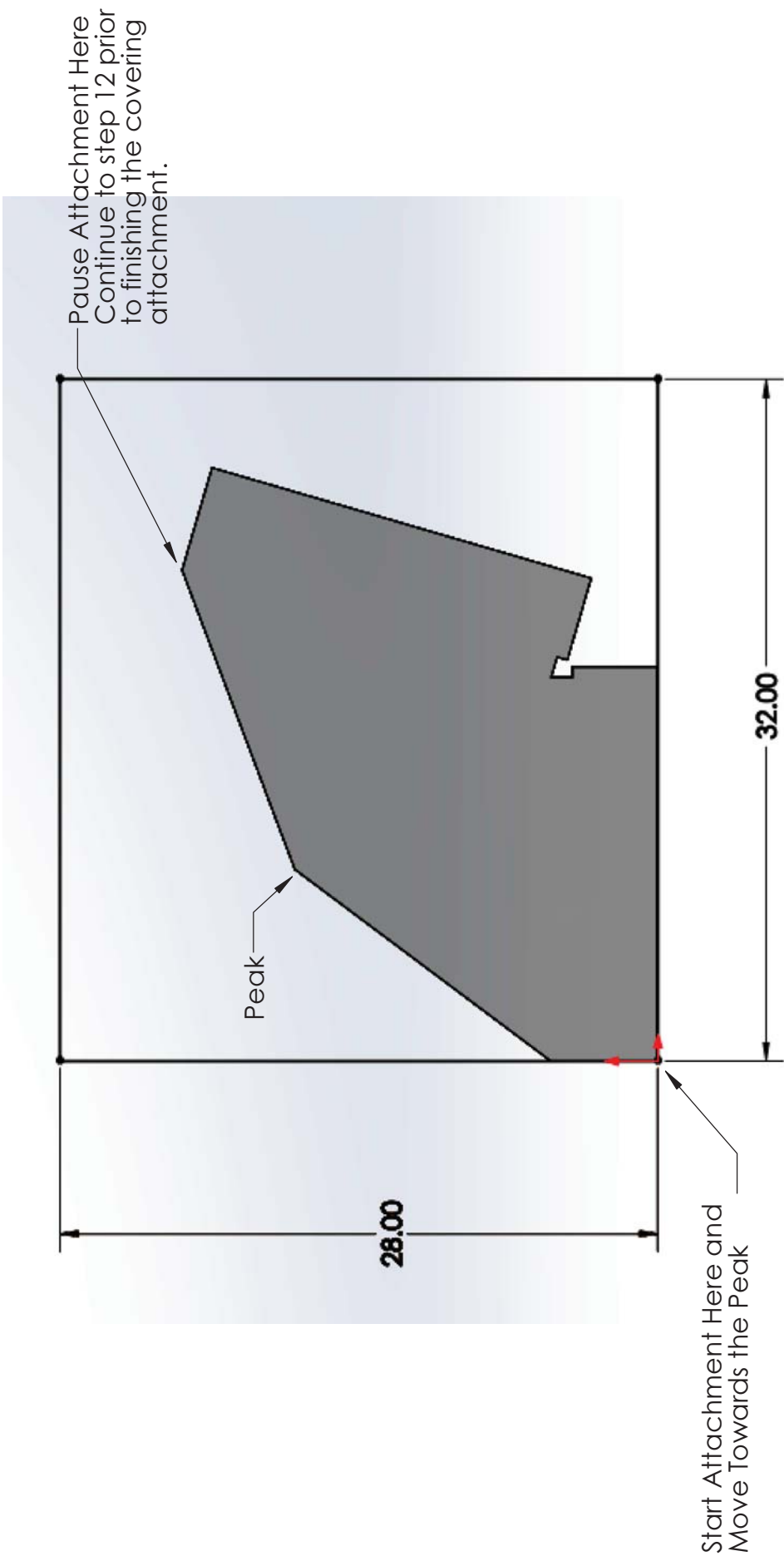


Figure 5: This figure shows the approximate layout for the anchor points of the windbreak.

- 8) Dig and install the concrete anchor points in the same manner described in the high tunnel instruction manual. Once the point anchor is secured, re-attach the half frame to the main high tunnel.
- 9) Measure and cut the windbreak purlins and frame pieces. The two extra sidewall parts will make up the sidewall pieces of the high tunnel. Approximate measurements are shown in attached drawing sheets in Appendix A. However, exact measurements will be specific to the high tunnel you have assembled thus far.

10) Return to Step 1 of the high tunnel manual to assemble lumber, wiggle wire, and the main body plastic.

11) Attach the windbreak plastic only to the sidewall and roof portion wiggle wire as shown below. Trim off the excess covering, but leave a border of at least a foot in case the covering needs adjustment. Fold the plastic back to assemble the rest after completion of the high tunnel frame.



Start Attachment Here and Move Towards the Peak

Pause Attachment Here Continue to step 12 prior to finishing the covering attachment.

- 12) Install windbreak purlins by attaching a purlin to the already mounted swivel fitting on the high tunnel end frame then slide the loose fittings until the purlin fits at a level position (horizontal to the ground). Do this to install each purlin starting from the top and working down. The assembly can be seen below.
- 13) Install the base frame and diagonal frame pieces using the designated fittings as shown in the figure below.

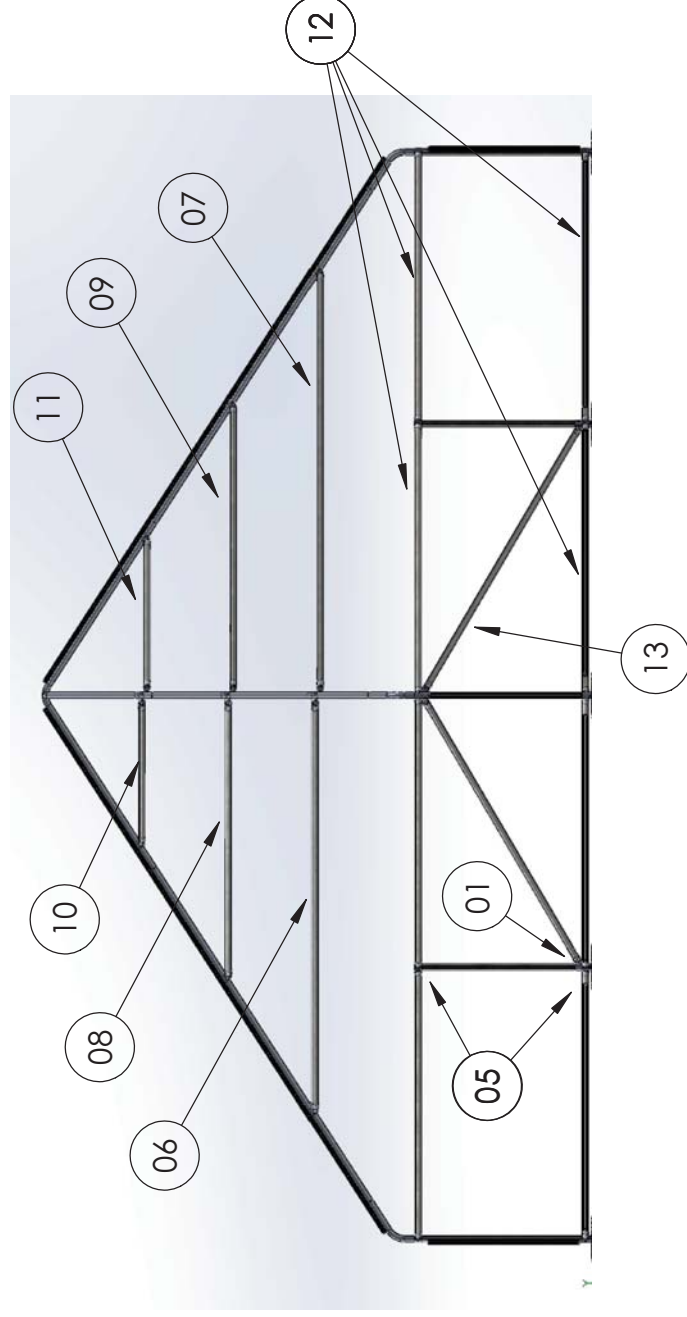


Figure 6: This figure shows the windbreak with the purlins assembled.

14) Measure, cut, and install one of the lumber pieces onto the base of the windbreak using c-brackets to mount the lumber directly to the windbreak piping. Approximate dimensions for the lumber piece is shown in the Appendix: however, the actual measurements should be made to ensure accuracy. Use the same installation techniques as in the high tunnel installation manual. Use the purchased U-clamps for this installation.

15) Measure, cut, and install the other lumber piece onto the base of the windbreak as done in the previous step.

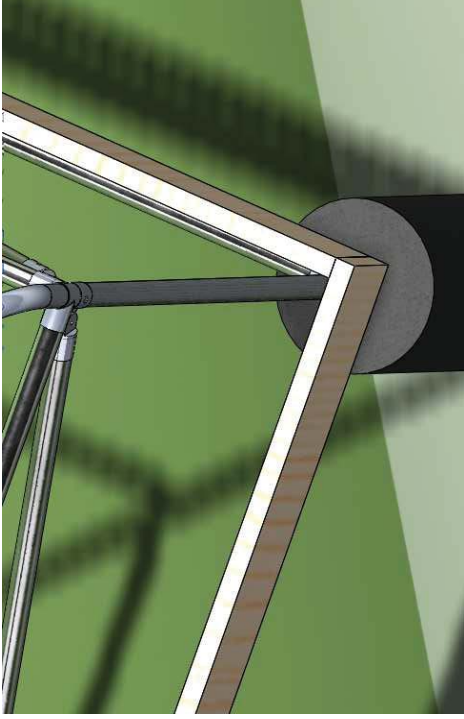


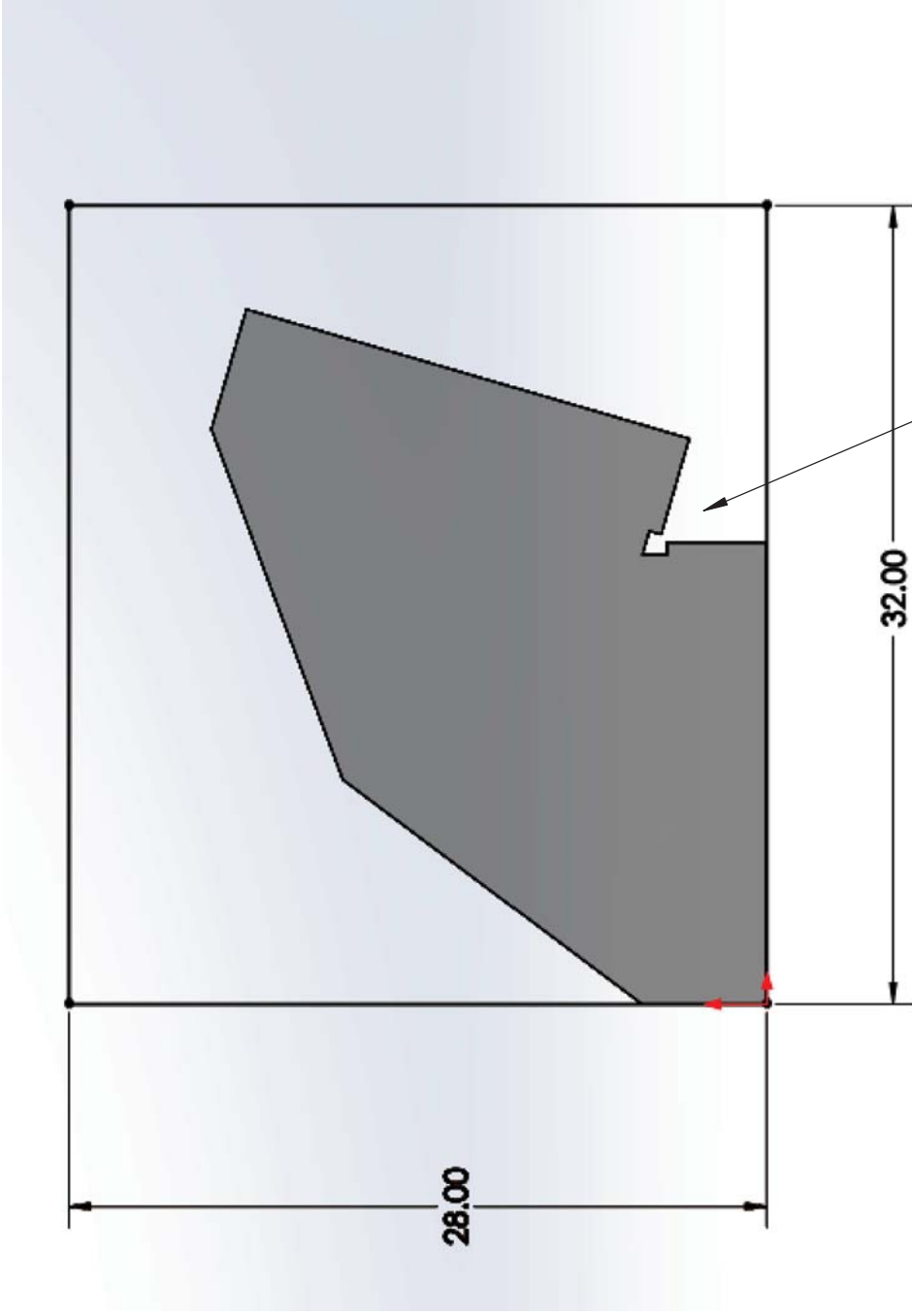
Figure 6: This illustrates how the lumber will meet at the tip of the windbreak.

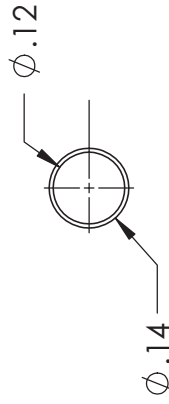
16) Install wiggle wire on the windbreak in the positions shown below. Use the same installation techniques as in the high tunnel installation manual.



Figure 7: This figure shows how the wiggle wire will mount to the lumber along the windbreak base.

- 17) Roll down the plastic that has already been attached to the roof of the windbreak. Stretch, attach, and cut the plastic to fit the high tunnel. Use any additional wiggle wire as necessary to further secure the covering.

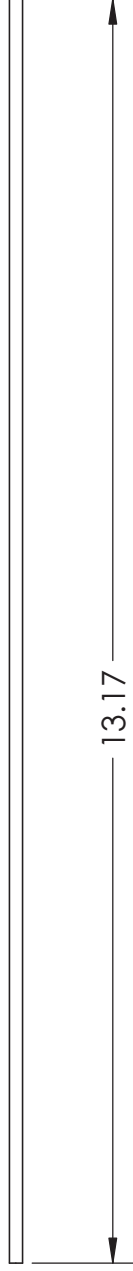
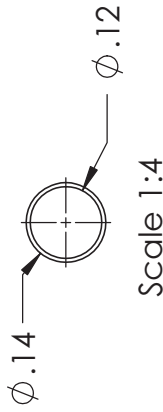




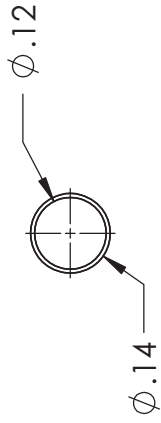
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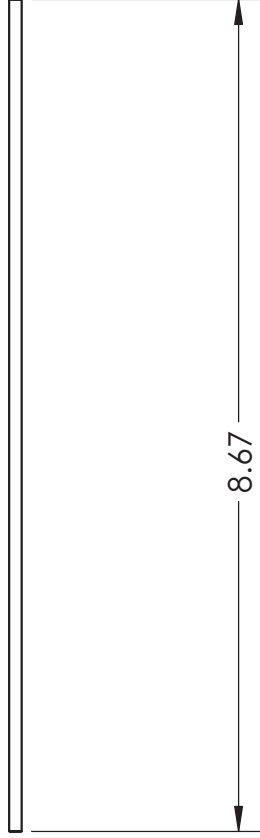
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	MATERIAL: Galvanized Steel	
DESCRIPTION: 14 gage	CHECKED BY: Faisal Alahmadi	DATE: 5/5/2014
DRAWN BY: Christopher Kreps	FILE NAME: Perlin 1.1.SLDPRT	DATE: 5/5/2014
PART #.: 06	QUANTITY: 1	SHEET: 10 OF 18
UNIVERSITY OF IDAHO ME DEPARTMENT		
High Tunnel Greenhouse		



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	MATERIAL: Galvanized Steel		
DEFAULT TOLERANCES: LINEAR: X.±.25 ANGULAR: X.± 2 X.X±.1 X.XX±.01 X.XXX±.002	DESCRIPTION: 14 gage	CHECKED BY: Faisal Alahmadi DATE: 5/5/2014	UNIVERSITY OF IDAHO ME DEPARTMENT
		DRAWN BY: Christopher Kreps DATE: 5/5/2014	SCALE: 1:24 SHEET: 11 OF 18
		FILE NAME: Perlin 1.SLDPR1	



Scale 1:4



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DESCRIPTION: 14 gage
 CHECKED BY: Faisal Alahmadi DATE: 5/5/2014
 DRAWN BY: Christopher Kreps DATE: 5/5/2014
 FILE NAME: Perlin 2.1.SLDPRT

DEFAULT TOLERANCES:
 LINEAR: X. \pm .25
 ANGULAR: X. \pm 2
 X.X. \pm 1
 X.XX. \pm 0.01
 X.XXX. \pm 0.002

DIMENSIONS ARE IN INCHES
 THIRD ANGLE PROJECTION

MATERIAL: Galvanized Steel

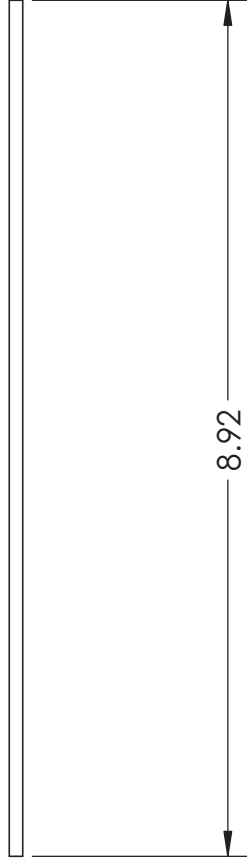
High Tunnel
 Greenhouse

UNIVERSITY OF IDAHO
 ME DEPARTMENT

PART #: 08
 QTY: 1
 SCALE: 1:24
 SHEET: 12 OF 18



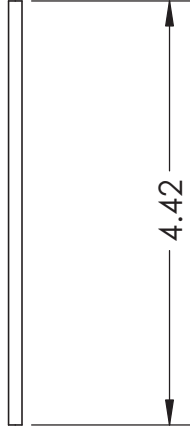
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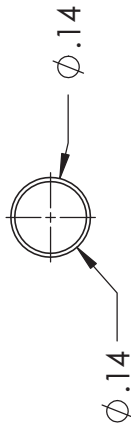
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	MATERIAL: Galvanized Steel		
DEFAULT TOLERANCES: LINEAR: X.±.25 ANGULAR: X.X±.1 X.XX±.01 X.XXX±.002	DESCRIPTION: 14 gage	CHECKED BY: Faisal Alahmadi DATE: 5/5/2014	UNIVERSITY OF IDAHO ME DEPARTMENT
		DRAWN BY: Christopher Kreps DATE: 5/5/2014	SCALE: 1:24 SHEET: 13 OF 18
		FILE NAME: Perlin 2.SLDPRJ	



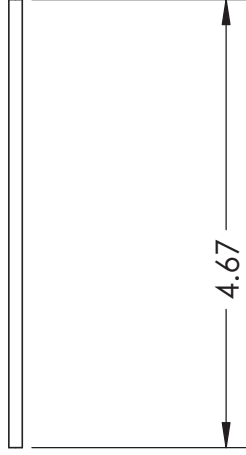
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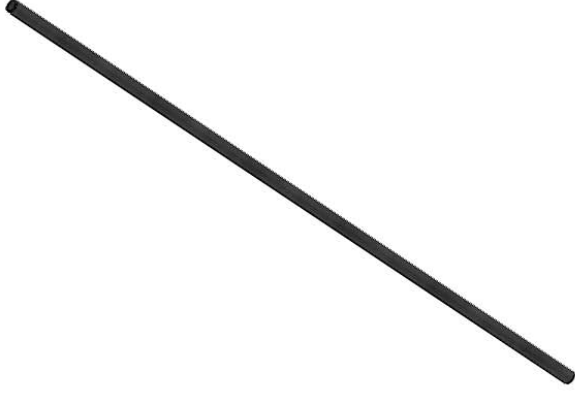
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	MATERIAL: Galvanized Steel		
DEFAULT TOLERANCES: LINEAR: X.±.25 X.X±.1 X.XX±.01 X.XXX±.002	DESCRIPTION: 14 gage CHECKED BY: Faisal Alahmadi DATE: 5/5/2014	DRAWN BY: Christopher Kreps DATE: 5/5/2014	FILE NAME: Perlin 3.1.SLDPRT SCALE: 1:24 SHEET: 14 OF 18



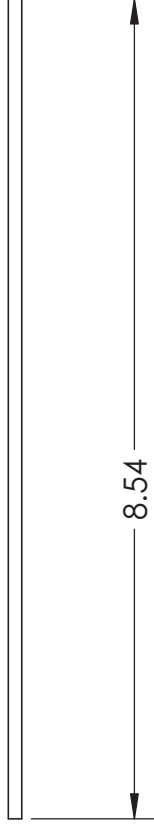
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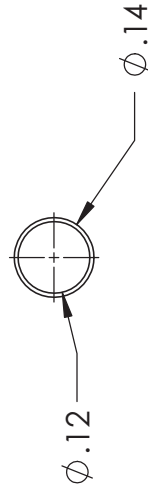
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	<p>MATERIAL: Galvanized Steel</p>		
<p>DESCRIPTION: 14 gage</p>	<p>CHECKED BY: Faisal Alahmadi</p>	<p>DATE: 5/5/2014</p>	<p>UNIVERSITY OF IDAHO ME DEPARTMENT</p>
<p>DEFAULT TOLERANCES:</p>	<p>DRAWN BY: Christopher Kreps</p>	<p>DATE: 5/5/2014</p>	<p>PART #: 11</p>
<p>LINEAR: X.\pm.25 X.X\pm.1 X.XX\pm.01 X.XXX\pm.002</p>	<p>FILE NAME: Perlin 3.SLDPR</p>	<p>ANGULAR: X.\pm 2 X.X\pm 1 X.XX\pm 0.30</p>	<p>QTY: 1</p>
			<p>SCALE: 1:24</p>
			<p>SHEET: 15 OF 18</p>



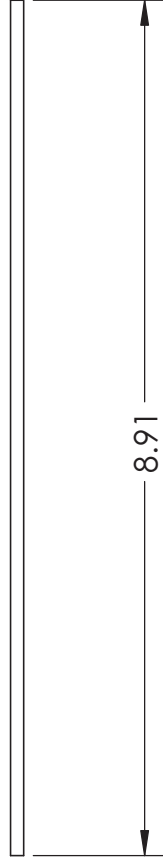
Scale 1:4



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	MATERIAL: Galvanized Steel		
DESCRIPTION: 14 gage	CHECKED BY: Faisal Alahmadi	DATE: 5/5/2014	PART #: 12
DRAWN BY: Christopher Kreps	DATE: 5/5/2014	FILE NAME: windbreak side perlin.SLDprt	QTY: 8
DEFAULT TOLERANCES: LINEAR: X.±.25 ANGULAR: X.± 2 X.X±.1 X.XX±.01 X.XXX±.002	SCALE: 1:24 SHEET: 16 OF 18		



Scale 1:4



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	MATERIAL: Galvanized Steel		
DEFAULT TOLERANCES: LINEAR: X.±.25 X.X±.1 X.XX±.01 X.XXX±.002	DESCRIPTION: 14 gage CHECKED BY: Faisal Alahmadi DATE: 5/5/2014	DRAWN BY: Christopher Kreps DATE: 5/5/2014	FILE NAME: windbreak diagonal perlin.SLDPRT SCALE: 1:24 SHEET: 17 OF 18

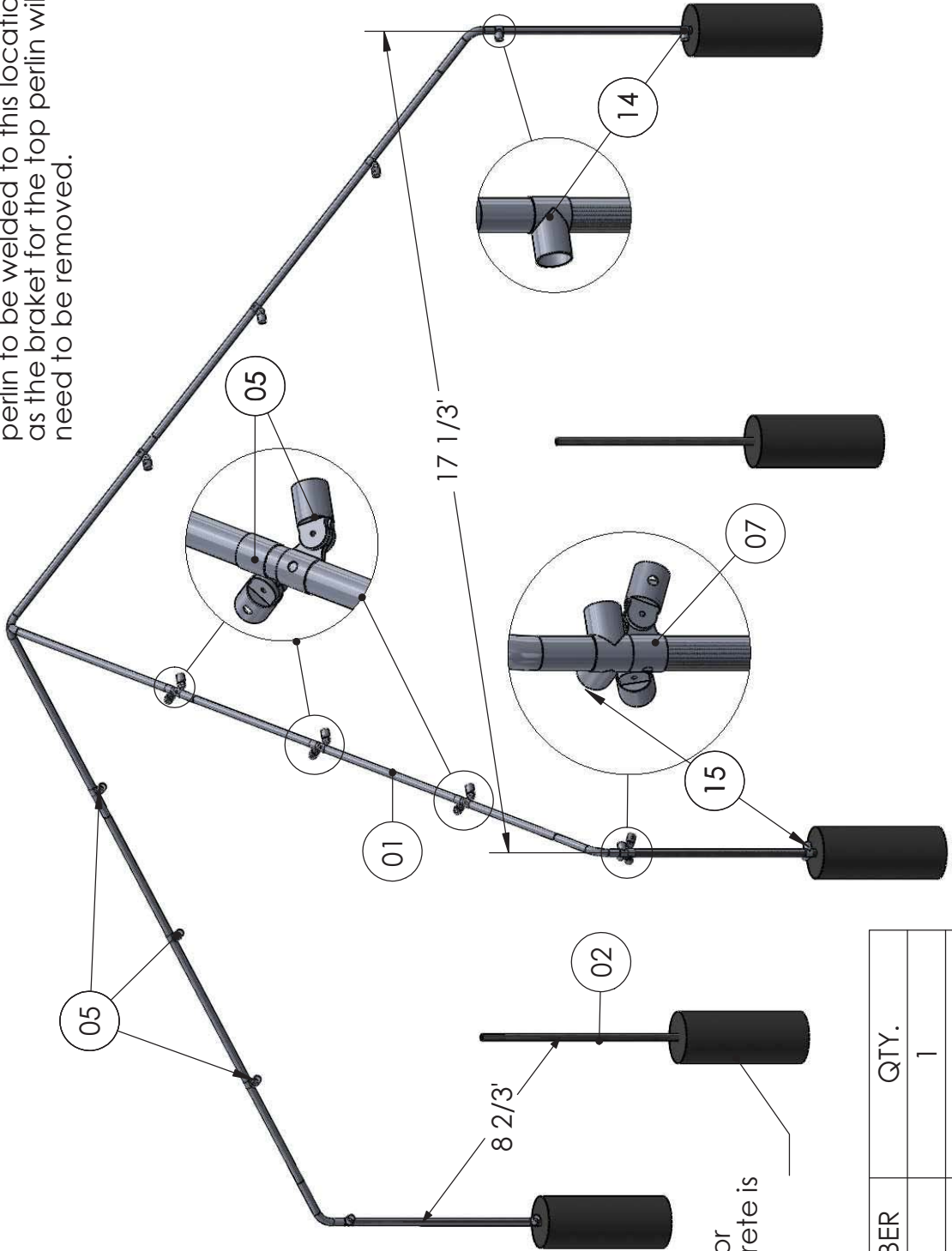
Part 01 will be attached by welding it to the top of the last frame section. This will also require the top perlin to be welded to this location as the bracket for the top perlin will need to be removed.

Prior to assembling the last frame section of the green house, attach the fittings listed to the given sections.

Exact fitting locations will be provided later. Generally place the fittings for the time being.

Concrete will be used to mount the frames to the ground. Follow original instruction manual for installation.

Parts 02 uses ground stands for mounting into position, concrete is optional.



ITEM NO.	PART NUMBER	QTY.
1	01	1
2	02	2
3	05	12
4	07	1
5	14	4
6	15	2

NOTE: fitting may not appear exactly as depicted. Use part numbers to correctly identify fittings. Each fitting has its own instructions for assembly. Follow those instructions for proper assembly of the fittings.