



Assembly Instructions Greenhouse Round Style 12 x 24 x 8

ASSEMBLY INSTRUCTIONS ROUND STYLE GREENHOUSE 12Wx24Lx8H

Congratulations!

Congratulations on your purchase of a Round Extended Style Greenhouse by MDM Products LLC. With proper installation, use, and maintenance, your new unit will provide many years of good and suitable service. Your new Rhino Shelter greenhouse is a combination of excellent engineering and well thought out design. The unit is comprised of a rigid tubular frame, covered with a long life polyethylene cover and double door ends.

The multiple part frame is pre-drilled for easy insertion of hardware to assemble. The tubing is made from high-grade galvanized steel tubing, to resist moisture and oxidation over the life of the shelter. The covering membrane is made from ASTM-5 approved polyethylene materials. The cover is UV protected for continual exposure to the sunlight.

It is suggested that you read the assembly instructions completely before you begin. This will help attain the best results for your installation the first time.

SAFETY & CODE WARNING

The installation of this unit must conform to the requirements of all authorities having jurisdiction in your specific local area. In the absence of such requirements, the installation must conform to the provided assembly and installation instructions. MDM Products LLC will not be responsible for failure to comply with any requirements in a given local area. Consequential damages or injuries caused by improper installation, alteration, or improper use are strictly that of the user. Unit MUST be cleared of All Snow Accumulation immediately to avoid overload. Unit is not to be used for occupancy for any length of time. No running internal combustion engines, open flames, or contact with heated surfaces are allowed.

For installation assistance or Customer Service, please call 800-447-7079 or 203-877-7070, 8AM-5PM EST. Cartons should be inspected upon delivery from carrier, and any evident damages should be noted on the bill of lading before signing. If upon opening the cartons hidden damage is noted, contact carrier or its agent immediately. Claims for shipping damage MUST be made with the shipping company. An inspection of the

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goods will most likely be required. Do not discard packing or any components before the freight company's inspection. All claims for freight damage must be made with 15 days of receipt of the goods in accordance with ICC regulations.

ASSEMBLY PROCEDURE

The proper sequence and steps to install this unit will produce a proper and good installation. Failure to read and follow these guidelines may result in an improper installation and will void all warranty and protection the owner is entitled to with the product. The steps to be undertaken are:

1. Perform an inventory check before beginning to be certain all components are available for installation.
2. Prepare location and place both unit boxes near location sight.
3. Assemble seven (7) frame arches of unit
4. Assemble unit end arch, first interior arch, and Wind Braces with first base rails and side rail sections.
5. Add additional arch assemblies with each section of base rails and side rails.
6. Place frame into desired position and level frame both end-to-end and side-to-side. Measure interior of frame feet across opposite corners and square
7. Anchor frame assembly to ground with provided anchors, u-bolts and drive rod provided.
8. Install two(2) doors on both ends of frame assembly.
9. Install main cover over frame assembly.

TOOLS REQUIRED

The following hand tools will be needed for proper installation of your new Rhino Shelter unit:

- 9/16" Open End Wrench**
- 9/16" Socket or Box Wrench**
- Large Flat Tip Screwdriver**
- Maul or Sledgehammer**
- 2 foot Level**
- 6-Foot Step Ladder**

INVENTORY CHECK

Start installation procedure by removing all components from packaging and ensure all components are present

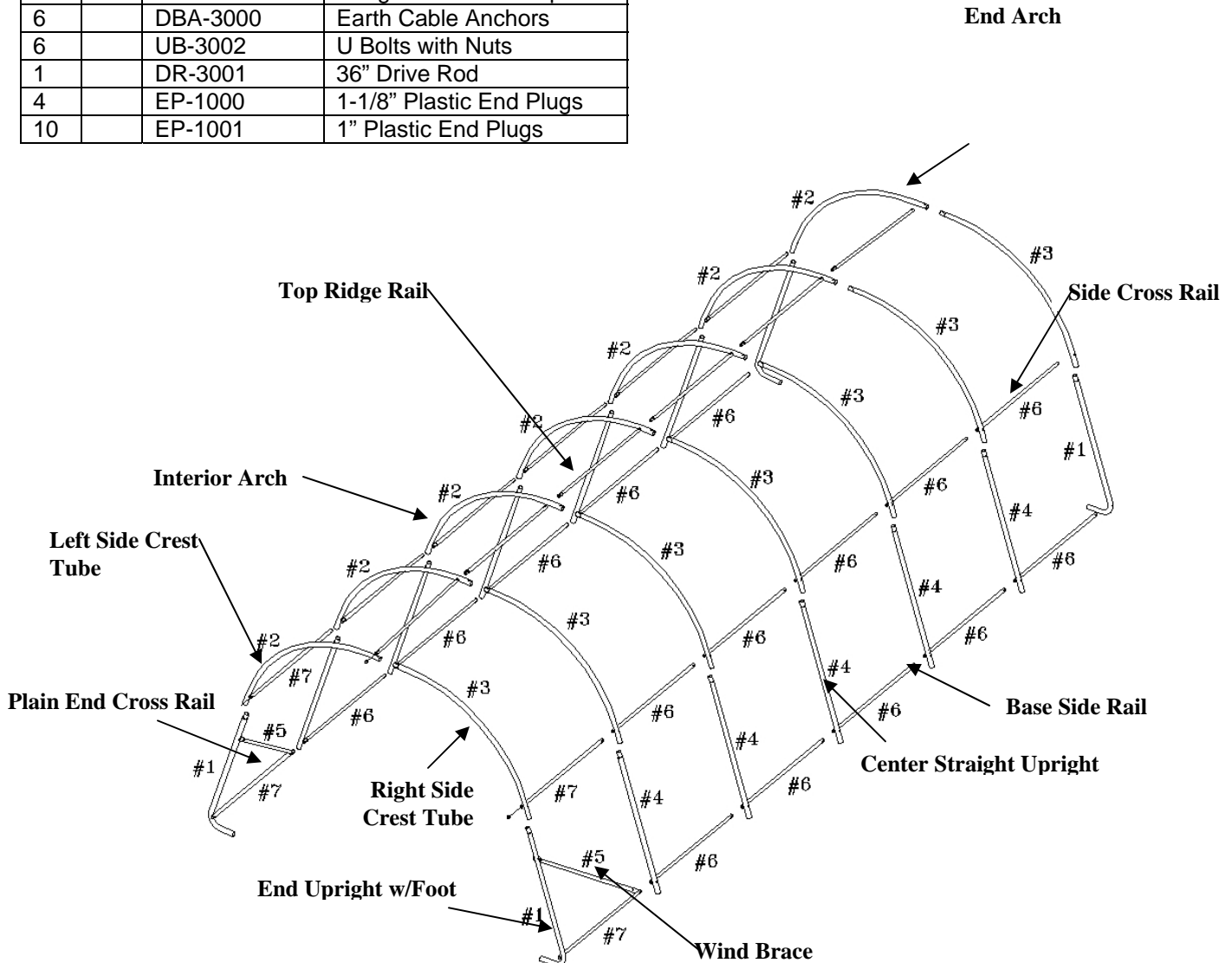
Qty	No.	Part Number	Description
1		RUC-10000	Main Unit Cover – 122408RSK
2		DZD-5002	End Panel Door with Double Zippers
4	1	EUL-4021	End Upright w/Foot



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7	2	RC-3020	Right Side Crest Tube
7	3	LC-3021	Left Side Crest Tube – swedged end
10	4	CSU-4020	Center Straight Uprights
2	5	CW-1800	Corner Wind Brace
25	6	SCR-2030	Swedged Cross Ridge Poles
5	7	ECR-2031	End Cross Poles – plain ends
8		TB-3004	Turnbuckles
35		CBN-3005-3	Carriage Bolts – 3¼”
2		CBN-3005-2	Carriage Bolts – 2-1/8”
37		CBN-3005-N	3/8” Nuts
37		CBN-3005-W	Washers – 3/8” Cupped
2		R-3003	3/16” Rope
8		BC-36	Bungee Cord Hold Ups
6		DBA-3000	Earth Cable Anchors
6		UB-3002	U Bolts with Nuts
1		DR-3001	36” Drive Rod
4		EP-1000	1-1/8” Plastic End Plugs
10		EP-1001	1” Plastic End Plugs

Note: All Side and Base Ridge Poles MUST be on Inside of Arch Frame Members. Top Ridge Poles MUST be on Outside of Arch Frame members, except at Ends. See Frame Assembly Step 5.





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SITE PREPARATION

Select a level or as close to level as practical location for your Rhino Shelter unit. The unit should be placed on a base of materials suitable for the storage load to be protected. The unit should not be located under trees, which will shed hard fruit such as apples, walnuts, or heavy pine cones. The cover of your unit will protect against normally leaves and light debris, however large branches or other falling items may cause puncture or tears in the cover material.

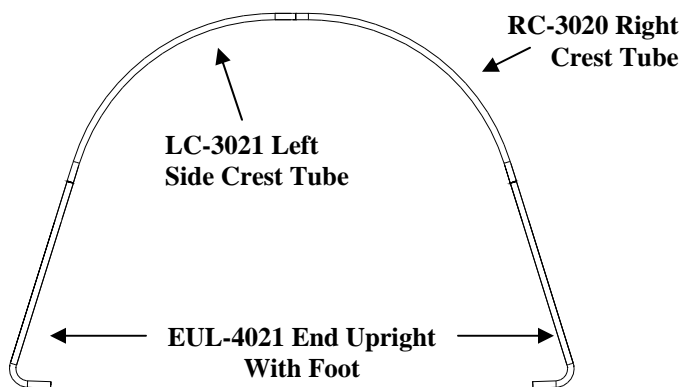
Take notice of drainage around your intended location. Water draining from the surrounding terrain should be planned so that it does not run into the unit. As well, rain or melting snow that comes off the unit should be drained away rather than accumulate and pool around the unit.

Check to be certain that adequate clearance is allowed for entry and exit from ends of unit. As unit has doors on both ends, ideally vehicle or equipment can be inserted or removed from either end.

FRAME ASSEMBLY

Step 1. Assemble the two End Arch Assemblies. Each consists of (1) Right Side Crest Tube RC-3020, (1) Left Side Crest Tube LC-3021 and (2) End Upright w/Foot EUL-4021 for each one. Assemble as shown below. The swedged ends slip into the plain end pipe of the adjoining frame member. Use (4) CBN-3005-3 carriage bolts with nuts and curved washers through pre-drilled holes in frame members.

Be certain to insert carriage bolts from the outer edge into the interior of the unit, with the washers and nuts on the inside of the arches. This will avoid tearing the fabric on doors and main cover when installed. Do not tighten the nuts completely until the frame is completed and set in place.



Step 2. Attach the (2) Corner Wind Braces CW-1800 (flattened ends) to the End Upright w/Foot EUL-4021 to the first of the End Arch assemblies. Use a CBN-3005-2 Carriage Bolt with Washer and Nut to secure the braces loosely to the Upright, into the hole just below the side cross rail. Do not tighten completely.

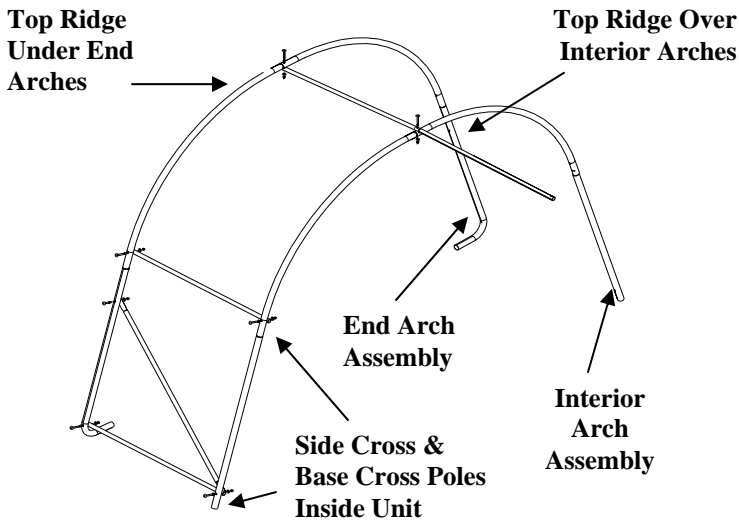
Step 3. Assemble **Base Cross Rail** assemblies using (1) Right Crest Tube RC-3020, (1) Left Crest Tube LC-3021, and (2) Center Straight Upright CSU-4020 for each. Use CBN-3000-3 carriage bolts with washers and nuts in the pre-drilled holes, aligned to form each arch. Place **Wind Brace**

Step 4. Support an End Arch with Wind Braces CW-1800 temporarily in the vertical position. Connect (4) ECR-2031 Plain End Cross Rails to the inside of the End Arch onto the (4) CBN-3005-3 carriage bolts that assembled the interior arch members. The Cross Rails should be put into the bottom and side hole of each arch upright. These will begin the Base Cross Rails and Side Cross Rails on each side of the frame assembly. Again, don't tighten the hardware until the next arch and cross rails are assembled.

Step 5. Stand an Interior Arch Assembly up vertically approximately 48" from the End Arch Assembly with cross rails. Align the cross rails from the End Arch with the carriage bolt holes in the Interior Arch. Remove the (4) nuts and washers on the carriage bolts, and connect the cross rails between the End Arch and the first Interior Arch. Connect the (2) Wind Braces #CW-2005 diagonally across the end and interior arch as shown in the frame illustration.

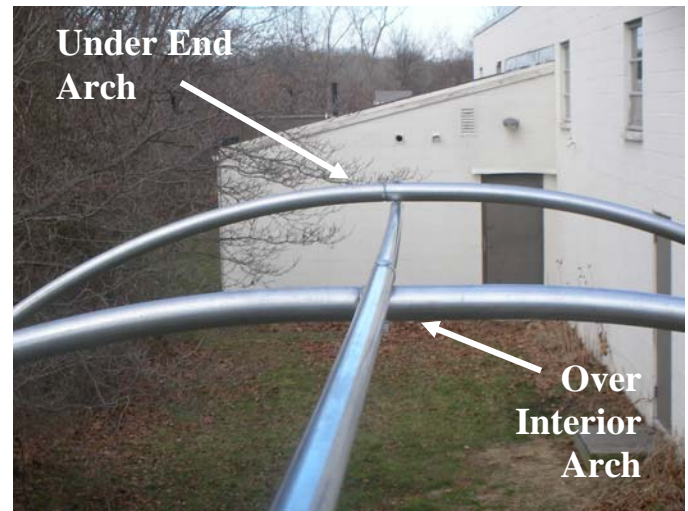


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same fashion. Note that the Plain end of the Ridge Swedged Cross Rail should fasten under the End Crest Arch at the End arch.

NOTE: Do not completely tighten bolts that connect the Cross Rails to the End Arches. They must be removed for proper for End Panel Zippered Door installation



Step 5. Begin the Top Ridge Rail by placing the final ECR-2031 Plain End Cross Rail underneath the End Arch Tube. Secure the Cross Rail loosely with a Carriage Bolt CBN-3000-3 with washer and nut facing the interior of the unit. This begins the Top Ridge Rail. The other end of the Cross Rail goes on top of the Interior Arch as shown in the illustration.

Step 6. Add the next Interior Arch by placing a Swedged Cross Rail SCR-2030 into each of the Base, Side, and Top Ridge Cross Rails, and then attaching Arch Assembly.

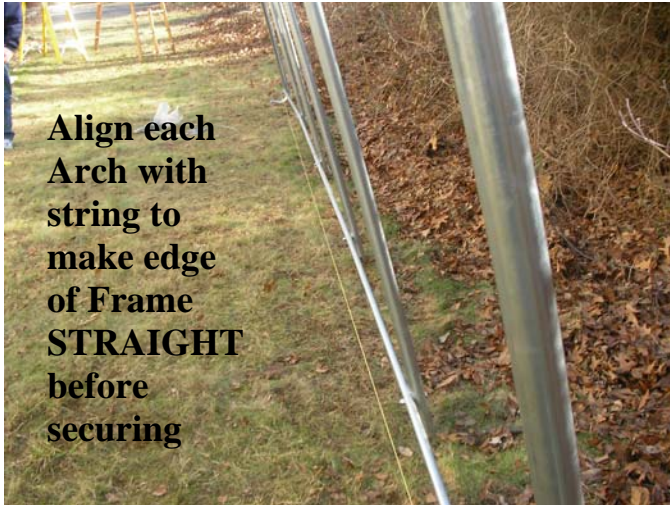
The swedged end of each cross rail slips into the plain end of the cross rail before it. Secure each Arch Assembly onto the frame by carriage bolts at each cross rail. Add all Interior Arches and second End Arch in the

Step 7. Move the frame assembly into its final installation location. This should be done with at least two people lifting each arch upright and corner to avoid bending or stressing any frame members.

Frame **must** then be squared up in position. Use a straight line string to align all frame members on the first side into position. Then measure and adjust each arch base to the proper width of 12' from side to side. Finally measure diagonally from inside corner to the opposite inside corner of frame. Both diagonal measurements should match. Measure at each end across base of arches. Do not expand arch width beyond 12' wide. This will severely reduce strength of arch assembly and cause fabric misfit. Adjust frame and support as necessary to bring frame into square. **Failure to square frame of unit will result in poor main cover fit and reduced strength and rigidity.**



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Align each Arch with string to make edge of Frame STRAIGHT before securing

Step 8. Once frame is square and properly supported, tighten carriage bolts on all frame members, except for End Arch members to Cross Rails along base, side, and top. Support End Arch feet with patio blocks or bricks as needed if ground is soft and will not support weight. After hardware is tightened, insert plastic end plugs EP-1000 (1 5/8") & EP-1001 (1") into all open ends of frame members.

ANCHORING FRAME TO GROUND

Once frame is square and properly supported, tighten carriage bolts on all frame members, except for End Arch members to Cross Rails along base, side, and top. Do not over tighten or oval tubing. After hardware is tightened, insert plastic end plugs #14 (2 3/8") & #15 (1 1/8") into all open ends of frame members.

NOTE: Frame must be anchored before installing any doors or cover.

Each Rhino Shelter 12x24x12 greenhouse comes with 12 EARTH CABLE ANCHORS with U-bolts and nuts. These versatile anchors allow the frame to be secured to almost any surface. In addition you have also been provided with a 36" Drive Rod used to drive the anchor heads into the earth.

If the location where you are placing the building has very hard ground or any rock in it, pre-drill the holes before inserting anchors. Hammer drills can be rented at most home improvement or rent-all centers. Hitting the anchors into rock will cause the drive rod end to

mushroom inside the anchor head, and prevent the drive rod from coming out of the hole.

Anchor placement should be made inside the frame at the interior corners of the unit, and midway along the sides of the frames. Anchors secure the building to the ground, as well as prevent spread of the frame over time.



Pre-Drill Holes if there is Any Rock In Ground



Drive Rod inserts into Anchor Head

ANCHOR STEP 1



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Step 1. Place the drive rod provided into the cup of the anchor. Using a heavy hammer drive the anchor into the soil until 6-8 inches of cable remains above the earth. Remove drive rod.

ANCHOR STEP 2

Place the Drive Rod through the loop in the anchor lanyard. Pull upward to set anchor head into the ground.



ANCHOR STEP 3

Slip one side of the U-bolt through the eyelet at the end of the anchor cable. Attach the cable to the Arch leg upright with the U-bolt and tighten. Do not attach to base cross rails. Ensure there is no slack in the cable. Slack can be removed by wrapping the cable around the tie-down rail.



END PANEL INSTALLATION

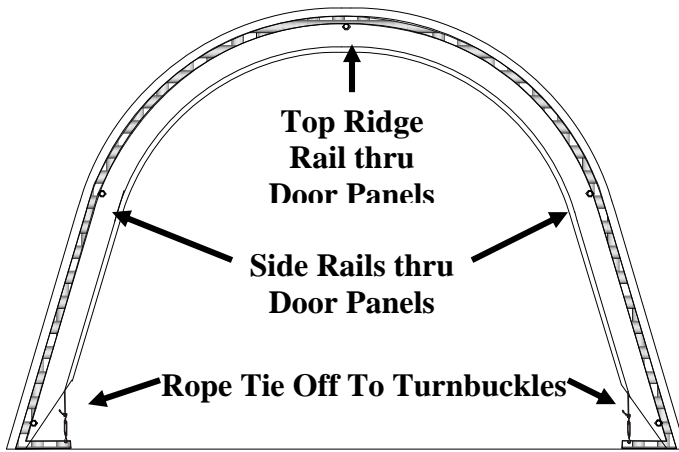
Note: End panels **MUST** be installed before installing Main Cover onto frame.

Step1. Remove Carriage bolts from the Top Crest Rail and the two Upper Cross Rails. Install one End Panel Door w/Zipper DZD-5002 at a time to the Frame assembly. Carefully align the door material over the arch to make an even fit.

Step 2. Place the end panel over the first arch and wrap the material over the End Arch bringing the slits in the end panel to the inside of the frame. End Door Panels have pre-cut slots that allow frame members to pass through so rope pocket is inside unit. Place the top ridge rail pole and the side cross rail poles through the material slits and replace the carriage bolts and tighten. Each door end will also require removal of the wind brace bolts and placement of the wind braces through slits in the ends panel. Reconnect wind braces with carriage bolts once end panel is put into place.



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When putting on the doors, adjust the length to make certain the doors do not drape onto the ground. If pulling them up puts too much stress on the slit where it goes over the wind brace, use a sharp knife to cut slit another inch or two to relieve it. The PE fabric is rip-stop weave, and can easily be cut to relieve stress at the frame members.

Step 3. Tie off one end of the rope coming out of the end panel to a turnbuckle (turn-buckle should be loosened all the way) and attach the turnbuckle to the hole in the foot of the end arch. Hold the end of the unsecured rope and apply downward pressure with a foot to remove excess slack.

Re-adjust gathered material evenly along inside edge of door rope slot. This step is key to getting a good door fit. Tie off the end off the rope to a second turnbuckle (fully opened) attached to a hole in the foot of the end arch on the opposite side. The end panel can then be tightened further by adjusting each turnbuckle.



The rope slot should be located inside the unit, with the frame members passing through the pre-cut slots in the end panel/door. Replace the carriage bolts after putting the end panels into position.





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Note: Adjust the end door panel by turning the turnbuckles or repeating step 3 on a regular basis

MAIN COVER INSTALLATION

Step 1. To elongate the life of Main Cover, put a small square of duct tape (field supplied) over each bolt head on frame that comes in contact with cover. The tape acts as a cushion to avoid rubbing damage to the cover over years.



After covering bolt heads with tape, unpack the Main Cover #RUC-10000 from the protective plastic packaging. The line of grommets on the inside (white) of the cover on the tie Down Flap run parallel to the sides of the frame assembly for positioning. Once cover is oriented properly to the Frame Assembly, pull Main Cover over top of frame assembly from the side, being careful not to snag the cover on any member, bolt, or other obstruction. Center the Main Cover over the Frame Assembly with the Main Cover colored side showing from the outside of the unit.

Step 2. Loosen the 4 remaining turnbuckles completely. Place the turnbuckles into hole in the foot of the end arches on the outside of the end panel. Tie off the rope coming out of the Main Cover rope slot on either side to the turnbuckles. After tying off one end of the rope in the Main Cover, pull the excess slack out of the rope and cover. Hold the end of the rope and push directly down with a foot onto the excess rope.



Temporarily tie the other end of the rope to the turnbuckle. Go over the entire edge of the cover and adjust the excess folds of material around the end so it is evenly distributed around rope slot. Once the rope is pulled tight and the cover is adjusted evenly over frame, tie off the rope end to the turnbuckle. All slack should be out of the rope at this time. Tighten the turnbuckle to further tighten the cover if necessary. Ensure the cover is centered. (this step may need to be repeated to ensure a snug and centered fit)

Step 3. When the cover is completely aligned secure each side of the cover to the bottom cross rail using the ropes provided. Start at one end and tie off the rope to the cross rail. Lace the rope through the grommets in the cover and back under the tie-down cross rail. Repeat this on the opposite side. Cover edge flap should be on the outside of unit to repel rain or snow.

Pay close attention to how tight the cover is put onto the frame. It should be tight enough so it does not flap around in the wind, but not so tight that it tears the material cover. The fabric backed PE fabric of Rhino Shelter units does not stretch. If you pull it so tight that the fabric is stretched, a small amount of additional stress from wind or contact can cause premature tears and failure. Only tighten cover enough to remove valleys between arch assemblies. Do Not over tighten.



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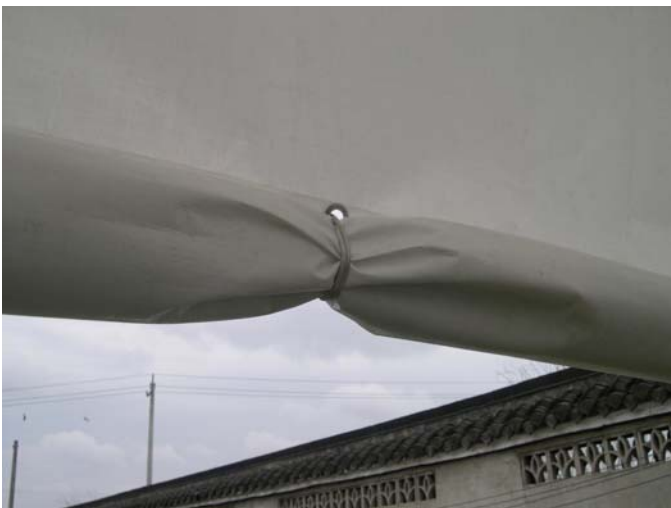


Step 4. Retighten or readjust the turnbuckles on both the cover and end panels as needed. Retighten the rope holding the main cover to the bottom cross rail.

Both the cover and the end panels should be checked and tightened on a monthly basis.

DOOR HOLD UPS

All Rhino Shelter doors are manufactured with a pocket on the bottom edge along the width axis. A ½" - 1" plastic or metal tube can be inserted into the pocket and trimmed to fit door width. Weight will reduce door movement in wind. Four (4) bungee straps are provided to retain the door in the up position. Roll the door from the bottom and secure the door roll with a bungee through the upper door grommet as shown.



MAINTENANCE AND CARE

Annually or more often, the unit should be completely inspected internally and externally to make certain the unit remains properly installed and secured. Particular attention should be paid to:

Hardware – check all carriage bolts and hardware connectors to be certain they are in place and tightened.

Anchors – during normal weather trends, the unit will strain against the anchors under windy conditions. Anchor hardware connection to frame members should be maintained tight and depth of anchors should be checked to be certain they remain deeply and firmly set.

Snow Accumulation – all snow accumulation on the main cover should be removed as soon as practical. The days following a snowfall when snow melts are when the most damage can occur. Unit is not designed for any amount of accumulated snow or ice. Tap the main cover from the inside with a broom end to knock off any accumulated snow.

Main Cover Lacing – the poly rope that secures the main cover to the bottom rail of the frame assembly should be checked, and adjusted as needed. The tension on the main cover should be uniform from end to end and side to side. Rope ends must be tied off onto the frame members at the ends on each side.

Turnbuckle Adjustment – during normal wind conditions and load, the doors and main cover adjustment points at the turnbuckle should be checked and tightened as necessary. The turnbuckles should be neither completely extended nor taken up, so that turnbuckle should be tight when in the mid range of overall adjustment. If necessary, readjust rope tie off on turnbuckle as needed to tighten or loosen as needed.

Cleaning – cover and doors can be cleaned with a mixture of light detergent and water. A soft bristle brush with the mixture can be used to loosen any hard dirt, mold, or buildup on the cover. After cleansing, the cover should be rinsed thoroughly to avoid any chemical reaction from residual detergent. Allowing dirt and debris to sit on cover over an extended time will damage cover irreparably.

Severe Weather – in preparation for inclement weather, completely secure the doors on both ends of your Rhino Shelter greenhouse. Allowing wind to enter either end lifts the building and puts undue stress on the anchoring system. This also shortens the life of the doors, zippers, and main cover.



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CUSTOMER SERVICE & ASSISTANCE

Please call MDM Products at 800-447-7079 or 203-877-7070 for questions about the installation of the unit in any way. Care and attention to a proper installation will add many years of life and function to your Rhino Shelter unit.

Please retain purchase documentation for your Rhino Shelter unit. All warranty claims must include purchase documentation for verification. All parts on your Rhino Shelter unit are available for replacement as needed. Protect your purchase by completing warranty registration card and mail/fax as soon as practical after installing your unit.