



Assembly Instructions 22x24x12 Peak Style Greenhouse

ASSEMBLY INSTRUCTIONS GREENHOUSE 22Wx24Lx12H

Congratulations!

Congratulations on your purchase of a Peak 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 assembly 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 also 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.

SAFETY 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 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) 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 as needed.
7. Anchor frame assembly firmly to ground with anchors, u-bolts and drive rod provided.
8. Install two (2) doors on ends of frame assembly.
9. Install main cover over frame assembly.

TOOLS REQUIRED

The following hand tools are suggested 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
10-Foot Step Ladder**

INVENTORY CHECK

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

Qty	Part Number	Description
1	MUC-6000	Main Unit Cover
2	DZD-6002	End Panel Door with Zippers
4	EUL-6002	End Upright w/Foot
14	BTSC-6006	Bent Tube Side Crest
7	TC-6000	Top Crest Tube
10	CSU-62001	Center Straight Uprights
14	TSS-6000	Top Straight Supports
4	CW-6005	Corner Wind Brace

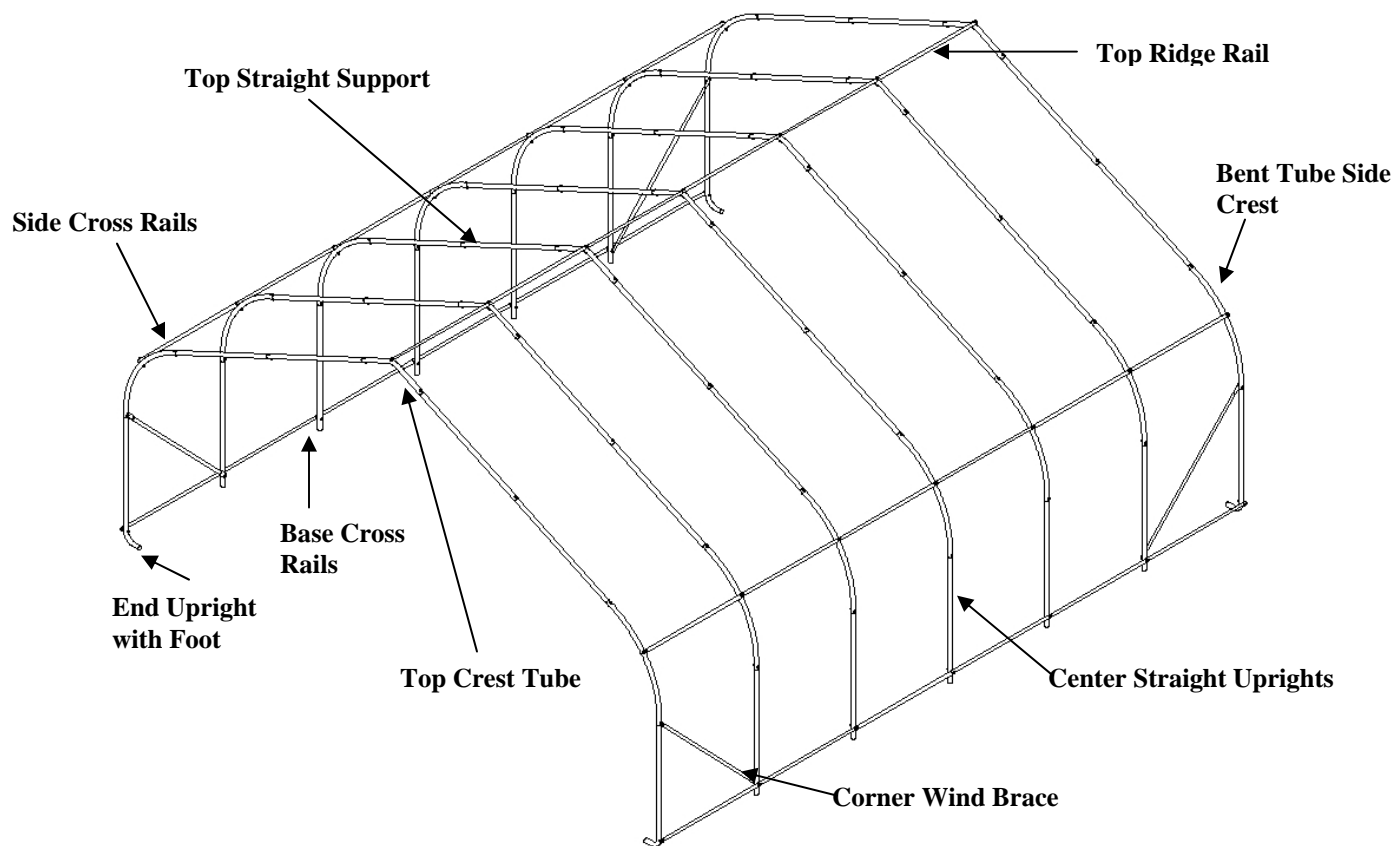


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25	SCR-2004	Swedged End Cross Rails
5	ECR-2003	Plain End Cross Rails
8	TB-3004	Turnbuckles
35	CBN-3005-4	Carriage Bolts – 4"
42	CBN-3005-278	Carriage Bolts – 2-7/8"
77	CBN-3005-N	9/16" Nuts
69	CBN-3005-W	Washers – 9/16" Cupped
8		Washers – 9/16" Flat
2	R-3003	3/16" Rope
14	DBA-3000	Earth Cable Anchors
14	UB-3002	U Bolts with Nuts
1	DR-3001	36" Anchor Drive Rod
4	EP-1000	2-3/8" Plastic End Plugs
10	EP-1001	1" Plastic End Plugs

Note: All Side & Base Cross Rails MUST be on the inside of Arch frame members. Top Ridge Cross Rails MUST be on the outside of Arch frame members, except at End Arches. See Step 5 for details.

End Arch Assembly



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 pinecones. 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 both near and around your intended location. Water draining from the surrounding



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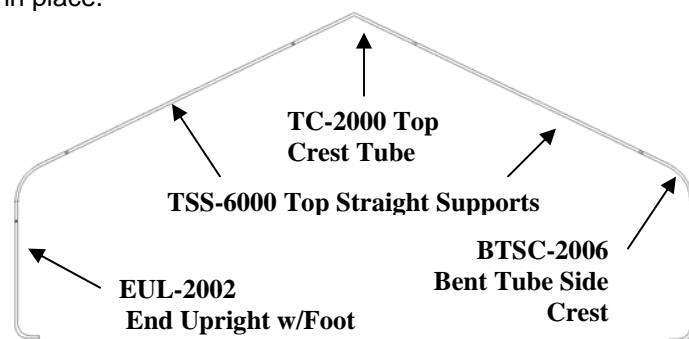
terrain should be planned so that it does not run into the unit. As well, rain or melting snow that comes off the unit should be drained away rather than accumulate and pool around the unit.

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 contents can be inserted or removed from either end.

FRAME ASSEMBLY

Step 1. Assemble the Front and Rear End Arch Assemblies (2) using (1) Top Crest Tube (TC-2000), (2) Top Straight Supports (TS-6000), (2) Bent Tube Side Crest (BTSC-2006) and (2) End Upright w/Foot (EUL-2002) for each End Arch Assembly. Slide the male (swedged) end of the frame components into the matching female end of the next frame member. Use 2 1/4" Carriage Bolts (CBN-3005-2) with washer and nuts to assemble the arch assemblies through the pre-drilled holes.

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.

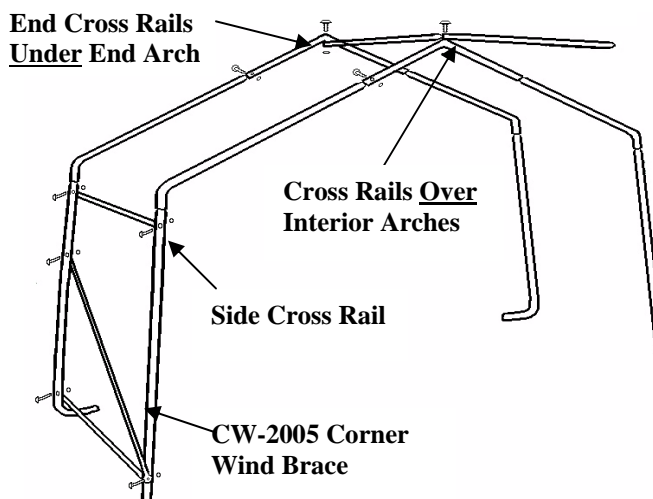


Step 2. Assemble (2) Corner Wind Braces (CW-2005) to the End Upright w/Foot (EUL-2002) on each of the End Arch assemblies. Use a 2 1/8" (CBN-3005-2) Carriage Bolt with Washer and Nut to secure the braces loosely to the Upright. Do not tighten completely.

Step 3. Assemble the remaining four Interior Arch Assemblies using (1) Top Crest Tube (TC-2000), (2) Bent Tube Side Crest (BTSC-2006), (2) Top Straight Supports (TS-6000), and (2) Center Straight Upright (CSU-2001) for each Interior Arch Assembly. Use 3 1/4" (CBN-3005-3) carriage bolts with washers and nuts in the pre-drilled holes, aligned to form the arch.

Step 4. Prepare the first End Arch Assembly by supporting it temporarily in the vertical position. Connect the (4) Plain End Cross Rails 1" diameter (ECR-2003) to the End Arch at the base rail and side rails positions. Use (4) 3/4" (CBN-3005-3) carriage bolts, washers, and nuts through the pre-drilled holes in the arch members. The Cross Rails should be put into the bottom and side hole of the arch upright. Again, don't tighten the hardware until the next arch and cross rails are assembled. It is very important to make certain all nuts are on the inside of the unit to avoid damaging the cover when put on.

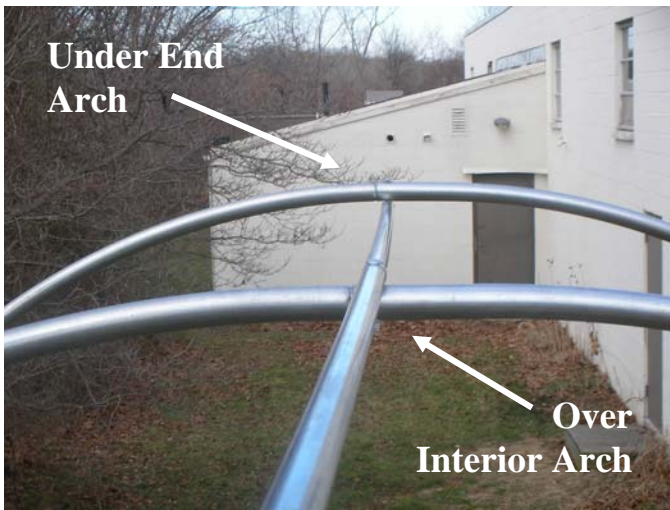
Stand an interior arch assembly up approximately 48" apart from the End Arch Assembly. Position it so the cross rails from the End Arch Assembly align with the holes in the Interior Arch. Using (4) 3/4" Carriage Bolts (CBN-3005-3) with nuts and washers, connect the cross rails between the end arch and the first interior arch assemblies. Connect the (2) Wind Braces #CW-2005 diagonally across the end and interior arch as shown in the frame illustration. Use flat 9/16" washer on the carriage bolt for the wind braces.



Step 5. Begin the Top Ridge Rail by placing the remaining Plain End Cross Rails (ECR-2003) underneath the End Top Crest Tube. Secure the Cross Rail loosely with a 3/4" Carriage Bolt (CBN-3005-3) with washer and nut facing the interior of the unit. Place the other end of the cross rail over the first Interior Arch as shown in the picture below.



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Step 6. Add remaining 4 Interior Arch Assemblies and finally 2nd End Arch Assembly in sequence in the same fashion. For each arch that is added, add a pair of base cross rails, a pair of side cross rail and the top ridge rail by inserting a Swedged End Cross Rail (SCR-5030) into the prior pole end. By adding cross rails at base, side, and top ridge, the arches will integrate into a strong frame assembly.

At the other End Arch Assembly, be certain to install the remaining two (2) Wind Braces (CW-6005) for stability. Plain end of final Swedged Cross Rail should fasten under the End Top Ridge Crest Arch and the Swedged End above middle Top Ridge Crest 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 7. Move the frame assembly into its final installation location. This should be done with at least one person lifting each frame upright to avoid bending or stressing any frame members.



Frame should now 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 end to the proper base width of 22' to align the other side. Finally measure diagonally from inside corner to inside corner of frame. Both diagonal measurements should match. Measure at each end across base of arches. Do not expand arch width beyond 22' 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.** If end or interior upright ends are placed on soft material that will not support weight, recess small patio blocks or bricks under leg ends. This will also allow better setting of frame before securing to ground.



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Support Each Upright on a Solid Base

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. After hardware is tightened, insert plastic end plugs 2-3/8" EP-1000 & 1" EP-1001 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 22x24x12 building comes with 14 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

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



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

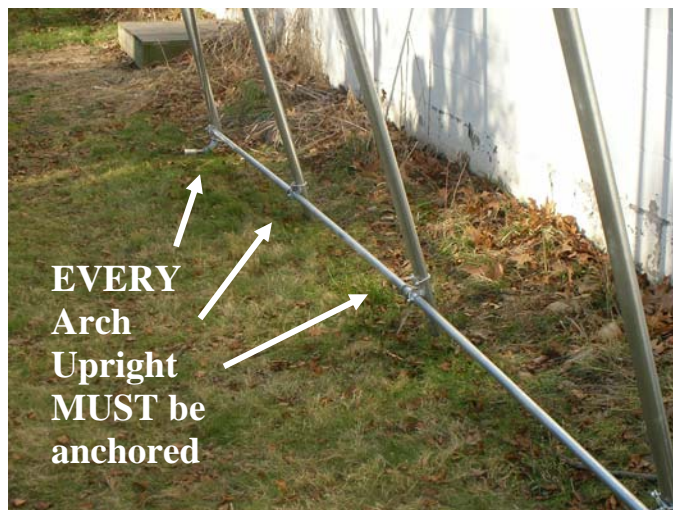


ANCHOR STEP 3

Slip one side of the U-bolt through the eyelet at the end of the anchor cable. Attach the cable to the Arch 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.



Wrap Excess
Cable around
Frame
Member to
Draw Anchor
Connection
Tight



EVERY
Arch
Upright
MUST be
anchored

END PANEL INSTALLATION

Note: Both End Panels MUST be installed before installing Main Cover onto frame.

Step1. Install One (1) End Panel Door w/Zipper (DZD-6002) at a time to ends of the Frame assembly. Remove Carriage bolts from the Top Ridge Rail, the two Base cross rails, and the two side Cross Rails.

Step 2. Place the end panel over the door over end arch and wrap the material around the arch bringing the vertical slits in the end panel to the inside of the frame arch. End Door Panels have pre-cut slits that allow frame members to pass through so rope pocket is inside unit. Place the top rail ridge pole and the side cross rails through the material slits and replace the carriage bolts and tighten. The 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.

When putting on the doors, adjust the length to make certain the doors do not drape onto the ground. Adjust by pulling more or less material over the end arch assembly. 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.

Door assembly is drawn over frame by tightening rope and securing to turnbuckles at the arch foot (Step 3). Frame must be secured in position so it does not move as end doors and main cover are tightened over frame.



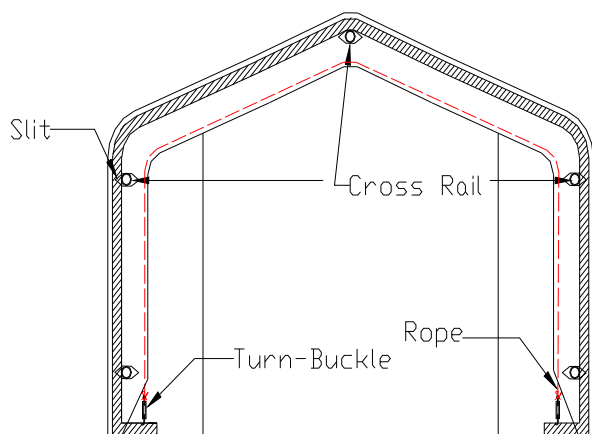
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This step is key to good fit and to prevent door movement in wind.



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

Step 3. Tie off one end of the rope coming out of the end panel to a turnbuckle. Turnbuckle should be loosened all the way and the open hook end attached to the hole in the inside of the end arch foot. Hold the end of the unsecured rope and apply pressure downward with a foot to remove excess. Re-adjust gathered material evenly along door rope. This step is key to getting a good door fit. Tie off the end of the rope to a second turnbuckle attached to a hole in the foot of the end arch on the opposite side. The end panel can be adjusted further by tightening the turnbuckles.



Note: Adjust/Snug the end 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. As an alternative, foam rubber pipe insulation also makes a good cushioning material over frame parts.



Unpack the Main Cover #MUC-7000 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 parallel to the side of the Frame



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Assembly (lengthwise), lift Main Cover edge over 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 outer hole in the foot of each end arch. Tie off the rope coming out of the Main Cover rope slot on either side to the turnbuckles. After securing one end of the rope in the Main Cover, pull the excess slack out of the rope and cover to tighten. Hold the end of the unsecured rope and apply pressure downward with a foot to remove excess. Temporarily tie the end of the rope to the turnbuckle. Go over the entire outer edge of the cover and adjust the excess material around the end so it is not bunched up. Spread excess material evenly along the outer edge. Once cover is pulled tight and even, tie off the rope end to the turnbuckle. All slack should be out of the rope at this time. Repeat this step on both ends of the cover. Tighten the turnbuckle to tighten the cover. This step may need to be repeated to ensure a snug and centered fit.

Step 3. When the cover is completely aligned secure the cover to the bottom tie-down cross rail using the rope 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

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.



Step 4. Retighten the turnbuckles on both the cover and end panels. 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.**

Roll Up Door Kits are included standard for triple zipper doors on one end of your Rhino Shelter 22X24X12 unit. Refer to the Roll Up Door Kit Installation Instructions for proper installation. These should be installed only after complete installation of doors and main cover. For best operation and fit, install the Roll Up Door Kits after a few days and making adjustment to cover as needed.

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 possible. Tap the main cover from the inside with a broom or soft brush to clear cover. Unit is not designed for any amount of accumulated snow or ice. Warrantee does NOT cover damage due to snow accumulation.



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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.

Thanks again for choosing this quality product. With proper operation and care we are confident it will meet your expectations in functionality, appearance and longevity.

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.

Door Operation – **Every time** doors are put down the zipper must be pulled down completely. Failure to do so will cause door zipper to fail prematurely.

CUSTOMER SERVICE & ASSISTANCE

Please call MDM Products at 800-447-7079 or 203-877-7070 for questions about the proper 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.