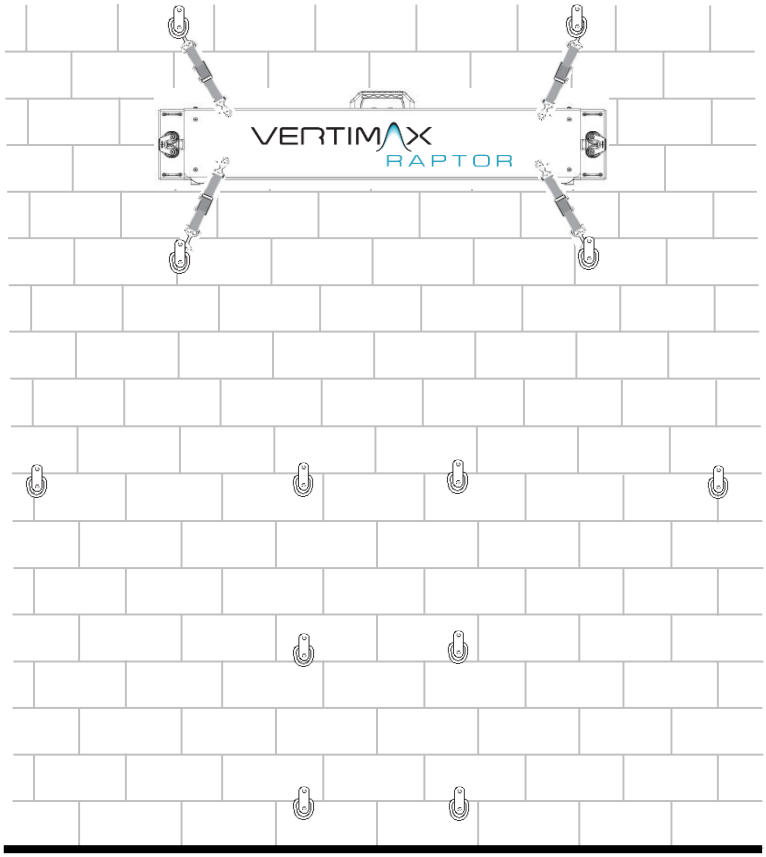
VertiMax Installation Manual For Mounting The Raptor Unit On Approved Concrete And Wood Structures



QUESTIONS?

At the VertiMax company, we are committed to providing complete customer satisfaction. If you have questions, see HOW TO CONTACT CUSTOMER CARE on page 2 of this manual.

⚠ Caution

Read all precautions and instructions in this manual before attempting to install D-Rings on a cinder block wall or solid cement wall.

How To Contact Customer Care

If you have questions after reading this Wall Mount Installation manual, or if you require assistance, please contact Customer Care at the phone number listed below.

Customer Care: 1-800-699-5867, Monday–Friday,
8 a.m.–5 p.m. Eastern Standard Time VertiMax, Inc.

Important Safety Precautions

WARNING: This installation procedure can only be conducted by adults with extensive experience using power tools and training related to construction of load bearing walls constructed from solid cement, cinder blocks or a combination of cement, wood and dry wall. All D-Rings have to be secured to walls with Tapcon screws and/or Toggle bolts properly anchored in cement. Never attempt to attach Raptor mounting D-Ring assemblies to dry wall by drilling through the dry wall and inserting fasteners into 2 by 4 wood supports behind the dry wall. Since the exact position of the 2 inch face of the 2 by 4 cannot be seen behind the dry wall it is not possible to properly center the fasteners in the 2 by 4 and guarantee a quality attachment that can safely secure the D-Ring to the wall.

Always use protective eye goggles when using any power or non-powered tools throughout this installation procedure.

Never drill or cut into a wall that has electrical wires running through it or an electrical shock could occur causing serious injury or death.

Table of Contents

Which Wall Designs Can I Install A Raptor On?

There are three basic wall types that the Raptor can be safely mounted to utilizing mounted D-Rings fastened to the wall in locates described in this Installation Manual.

(1) Cinder Block Wall – A cement wall constructed from cinder block provides a suitable structure to support the Raptor unit and movable pulley assemblies with D-Ring anchors appropriately installed. If dry wall is attached directly to the cinder block wall or attached to the cinder block wall using metal "Hat Channel" or two by four studs, care must be taken to ensure toggle bolts are properly anchored in the cinder block hollows and/or Tapcon screws are anchored a minimum of two (2) inches into solid cement. Kit (1) contents for Cinder Block walls contain:

Kit 1 (Cinder Block Mounting Kit Contents)

D-Ring Assembly
Qty. 12

Toggle Assembly
Qty. 25 (1 Spare)

Toggle Screw & Washer
Qty. 25 Each (1 Spare Each)

3/16" Masonry
Drill Bit Qty. 1

1/2" Masonry Drill Bit Qty. 1

3-1/4" Tapcon Screw Qty. 25
(1 Spare)

Note that when drilling into cinder block sometimes you will drill into a hollow in the block. In such a case the Toggle Assembly and Toggle Screw and washer will be used to secure the D-Ring. In other cases you may drill into solid cement such as the filler cement between two cinder blocks. In such a case a Toggle bolt cannot be used and a Tapcon screw must be used instead. This is why an equal number of both Toggle bolt assemblies and Tapcon screws are provided since it is not possible to know how many hollows or solid drill holes will be encountered during the installation process of 12 D-Rings.

(2) Solid Cement Wall – A solid cement wall construction provides a suitable structure to support the Raptor unit and movable pulley assemblies with D-Ring anchors appropriately installed. If dry wall is attached directly to the cement wall or attached to the cement wall using metal “Hat Channel” or two by four studs, care must be taken to ensure Tapcon screws are anchored a minimum of two (2) inches into solid cement. Kit (2) contents for D-Ring attachment to solid cement walls contain:

Kit 2 (Solid Cement Wall Mounting Kit Contents)

D-Ring Assembly
Qty. 12

3-1/4” Tapcon Screw Qty. 25
(1 Spare)

3/16” Masonry
Drill Bit Qty. 1

Note that when drilling into solid concrete there will be no need for toggle fasteners designed for hollows in cinder blocks. Thus only Tapcon mounting screws and the 3/16” masonry drill bit required to drill the pilot holes for the Tapcon screws are required.

(3) Wooden Wall Installation – When anchoring Raptor support D-Rings to existing metal or wood stud walls with gypsum board finish the walls may require the installation of additional 2x4 wood blocking. Blocking should be installed between the existing vertical wall studs at the unit mounting height above the finish floor for the width of the Raptor unit and between adjacent D-Ring assemblies. Consult a licensed structural engineer to ensure the lateral stability of the existing wall will withstand horizontal point loads of +/- 150 lbs. at each D-Ring mounting point. Kit (2) contents for D-Ring attachment to wood walls contain:

Kit 3 (Wood Structure Wall Mounting Kit Contents)

D-Ring Assembly
Qty. 12

3-1/2" X ¼" Lag Bolt Qty. 25
(1 Spare)

3/16" Wood
Drill Bit Qty. 1

Note that when attaching D-Rings to Solid wood structures thicker than 3.5" two of the above Lag bolts can be used to secure each D-Ring assembly. If you are attaching the D-Rings to a ¾" thick or thicker plywood structure with more than 1" of space between the back side of the plywood and supporting structure then Toggle bolt assemblies may be used to secure the D-Rings to the plywood. In such a case the customer must inform Customer Service that they want to modify the standard Kit 3 configuration to include Toggle fastener assemblies which will result in an increase to the retail cost of Kit 3 which does not price in Toggle fasteners.

Raptor Vertical Wall Mount Instructions For A Cement Wall

Important Note! A cinder block wall mount will require Wall Mounting Kit 1 while a solid concrete wall will require Wall Mounting Kit 2.

Step 1 – Referencing Figure 1, use the measurement specifications to mark the four locations indicated by the red + symbols and associated measurements.

Step 2 - Carefully mark the center of both mounting hole locations on the cement block behind the mounting latch with a marker (see Figures 2 and 3). After marking all four D-Ring locations the markings on the wall indicating drilling locations should appear as in Figure 4.

Step 3 & 4 – Using the 3/16" masonry drill bit, drill out all eight mounting holes. Reference Figures 5 (Cinder Block), 5A (Solid Cement) & 6 and accompanying notes informing you that some drilled holes will break into hollow areas in the cinder block while other holes will be drilled into solid cement with no hollow. Each drilled hole that breaks into a hollow area will need to be marked and subsequently drilled out with the ½" masonry drill bit in Step 5 so that it may accept a Toggle fastener. Any hole that does not break into a hollow and it's complete drill depth is into solid material will require a Tapcon screw for that specific hole to secure the D-Ring. Note that some D-Rings may require a toggle bolt in one mounting hole and a Tapcon screw in the second mounting hole. Some D-Rings will require two Tapcon screws or two Toggle assemblies and bolts. **IMPORTANT** – Make sure all holes requiring Tapcon screws are drilled deeper than the length of the Tapcon screw! If the hole is not deep enough the Tapcon screw will bottom out in the hole before it can tighten against the D-Ring mounting latch.

Step 5 – Use the ½" masonry drill bit to further expand the 3/16" hollow drill through holes so that they may accept the ½" diameter Toggle fastener. Reference Figure 7 to see some of the different fastener combinations that may be required on any given D-Ring mounting latch depending on whether the drill bit went through a hollow or through solid material. Figure 8 shows the required mounting hardware and drill bit required if mounting holes encountered solid material for the complete depth of the drill out. Figure 9 shows the required mounting hardware and drill bits required if the 3/16" masonry bit broke into a hollow in the cinder block.

Step 6 – Use the proper mounting hardware to secure all four D-Ring assemblies to the cinder block wall. After installation the D-Rings should appear as shown in Figure 10.

Step 7 – Use the four Raptor attachment straps to secure the Raptor to the wall as shown in Figure 11. Note that the Raptor can be rotated 180 degrees if desired (see Figure 13).

Raptor Vertical Wall Mount Instructions For A Cement Wall

Step 8 – Repeat the previous steps 1-6 to mount the remaining 8 D-Rings to the wall. If you want to train on the right side of the vertical Raptor mount, reference Figure 12 for the measurements to place the remaining eight D-Rings (that will support the Raptor's moveable pulley assemblies) to the right of the Raptor. If you want to train on the left side of the vertical Raptor mount, reference Figure 13 for the measurements to place the remaining eight D-Rings (that will support the Raptor's moveable pulley assemblies) to the left of the Raptor.

Step 1 – Mark Four D-Ring locations on wall (+) with vertical and horizontal spacing as shown by Figure 1. Note the vertical position of lower D-Rings should be 16 to 24 inches above the ground

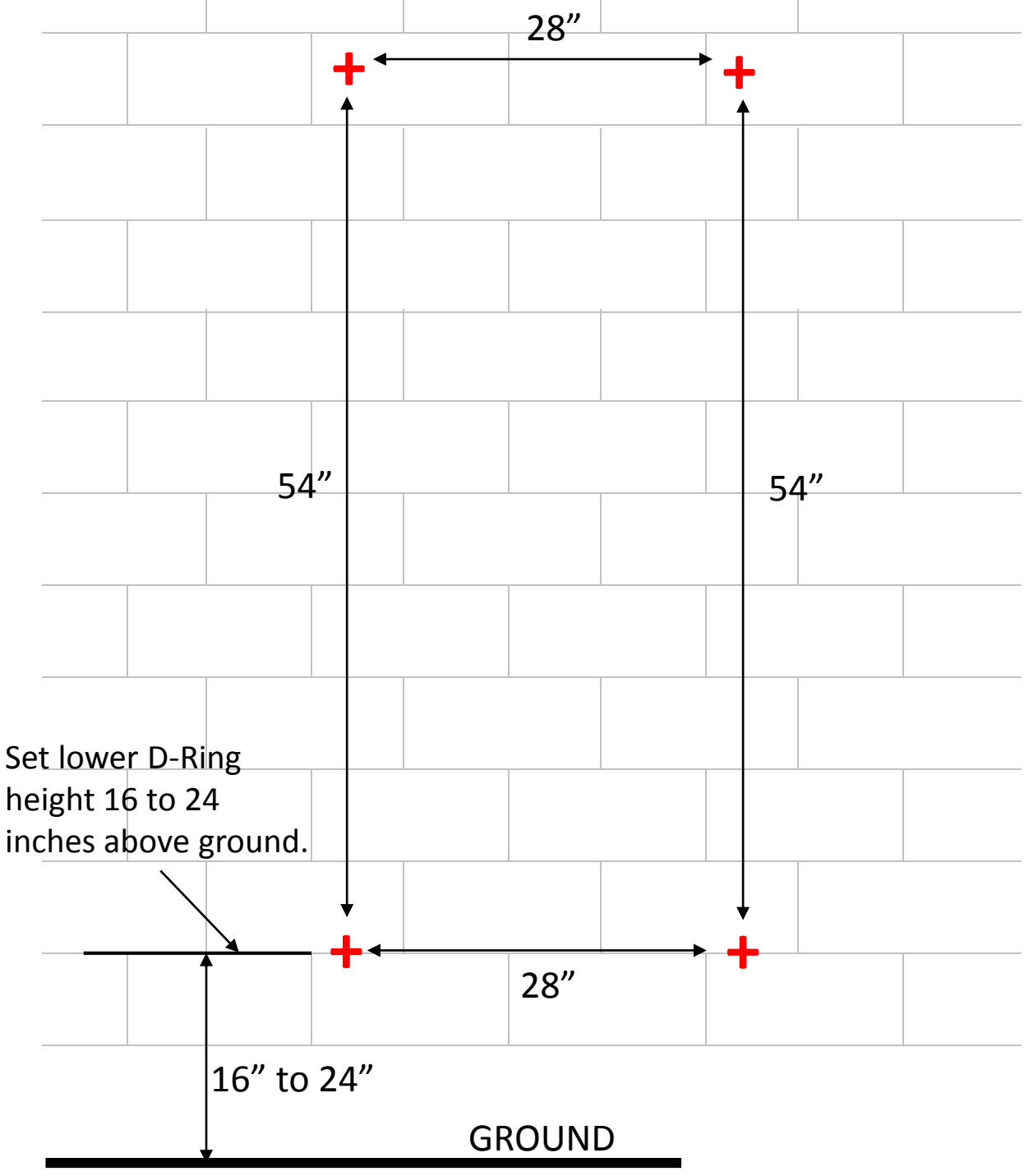


Figure 1
Cement Wall Vertical Mount “D” Ring Placement

Step 2 – Sequentially place each of the four D-Rings as shown in Figure 2 over the four reference marks placed on the cinder block wall in Step 1. Using a black marker, trace out the circular mounting holes in the Securing Latch bracket so two small circles (to be used as mounting hole references) for each D-Ring assembly will be left on the wall as shown in Figure 3.

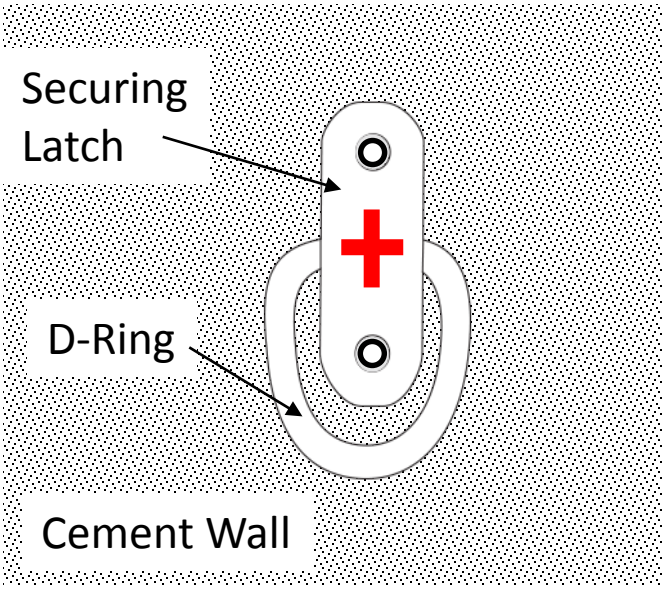


Figure 2

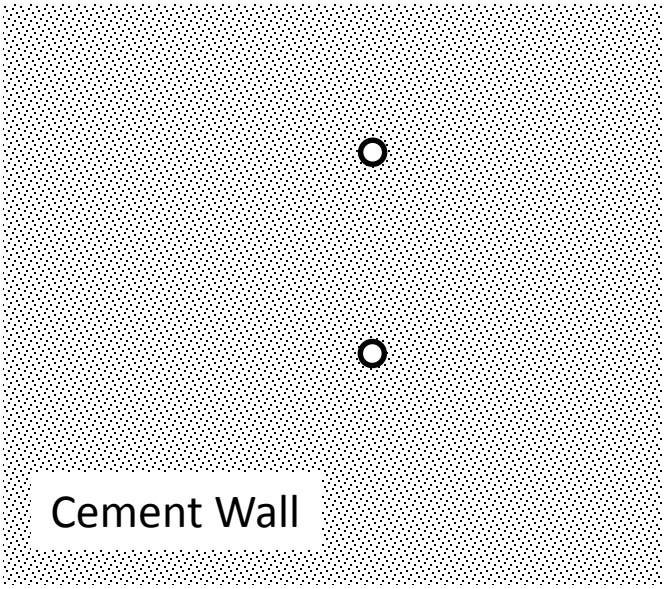


Figure 3
Cement Wall Vertical Mount "D" Ring Placement

Step 2 – When Step 1 is completed you should have eight drill hole marks on the cement wall as shown in Figure 4 below.

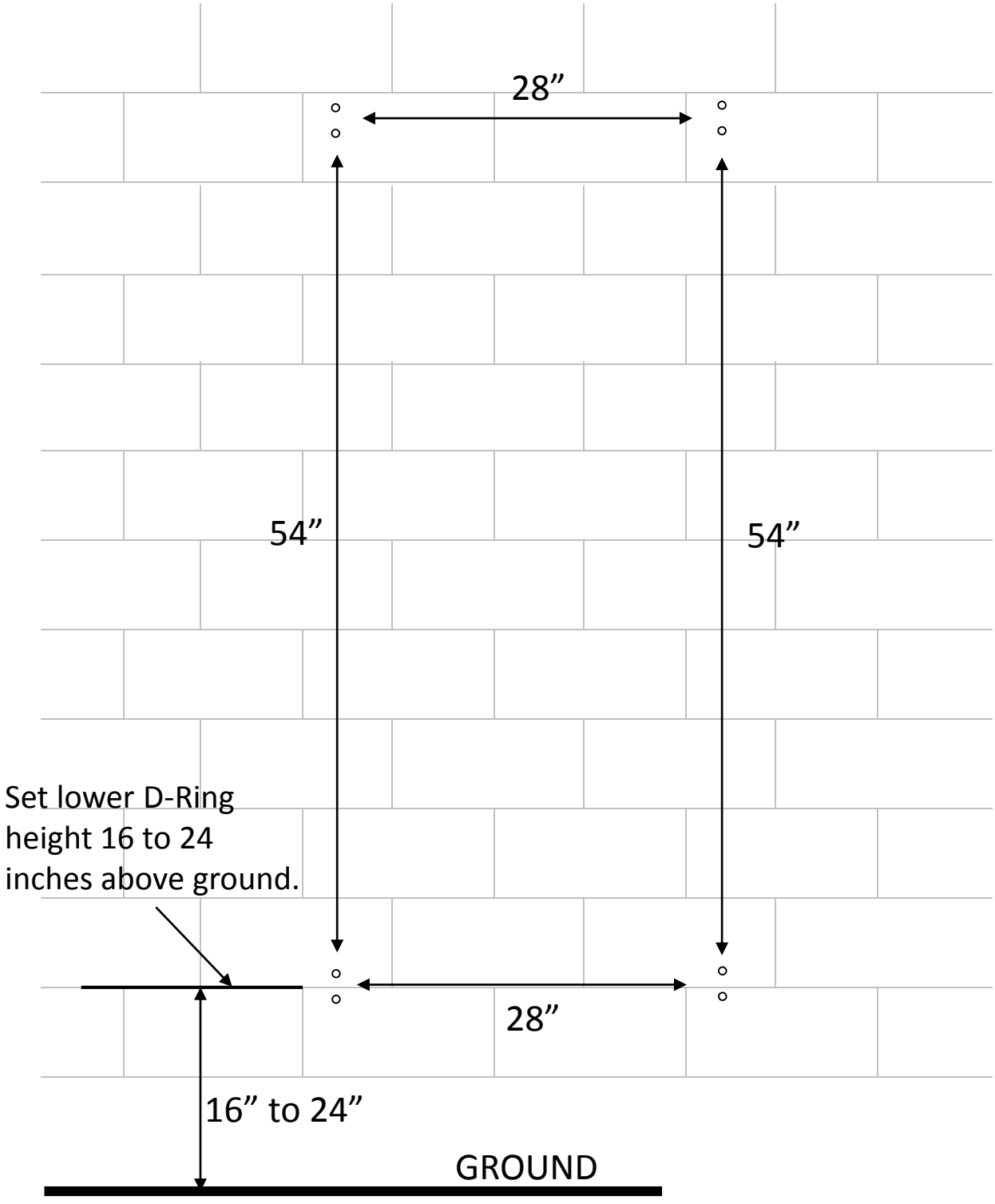


Figure 4
Cement Wall Vertical Mount “D” Ring Placement

Step 3 – In this step the 3/16” masonry drill bit supplied with your mounting kit will be used to drill out each of the eight holes marked in Step 2. Referencing Figure 5 below, when drilling into cinder block you may drill into a hollow (a) which will require a toggle bolt mount to secure the D-Ring to the wall. Or you will have to drill through solid cement for the complete depth of the mounting hole (b) which will require simple TapCon screws to mount the D-Ring. Do not use a TapCon screw on any hole that enters a hollow in the cinder block! You’ll know you hit a hollow if after drilling about an inch into cement, the drill bit breaks through the hollow and the complete bit quickly sinks into the cinder block wall with no resistance. If you don’t hit a hollow you will feel significant resistance as the drill bit cuts through cement for the entire depth of the mounting hole where a TapCon screw will be inserted to fasten the D-Ring assembly to the wall. All Hollow Drill Throughs will require to be drilled a second time with a ½” masonry bit to enlarge the initial 3/16” hole so that it may accept the larger diameter Toggle Bolt.

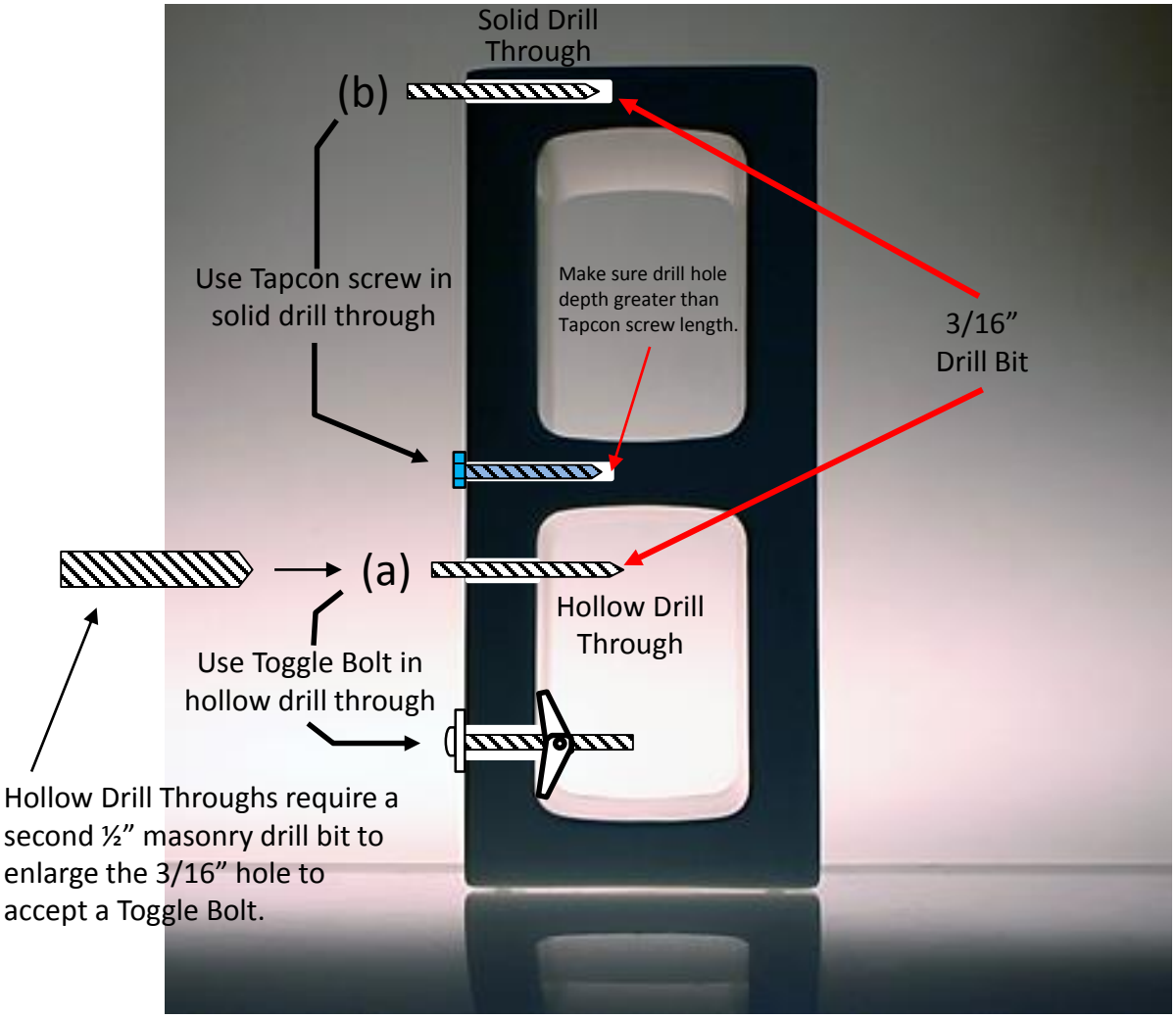


Figure 5 (Drilling Into Cinder Block)

Step 3 – When to use a Tapcon Screw or Toggle Bolt

Step 3 – If you are installing the D-Rings on a solid cement wall as opposed to cinder block, you will only require Installation Kit 2 containing the Tapcon screw fasteners as opposed to Kit 1 for Cinder Block walls which contain both Tapcon and Toggle. Make sure when you drill the mounting holes for the Tapcon screws that the drill penetrates the cement deeper than the Tapcon screw is long. Otherwise the screw will not screw all the way into the cement and pin the D-Ring securely against the cement wall.

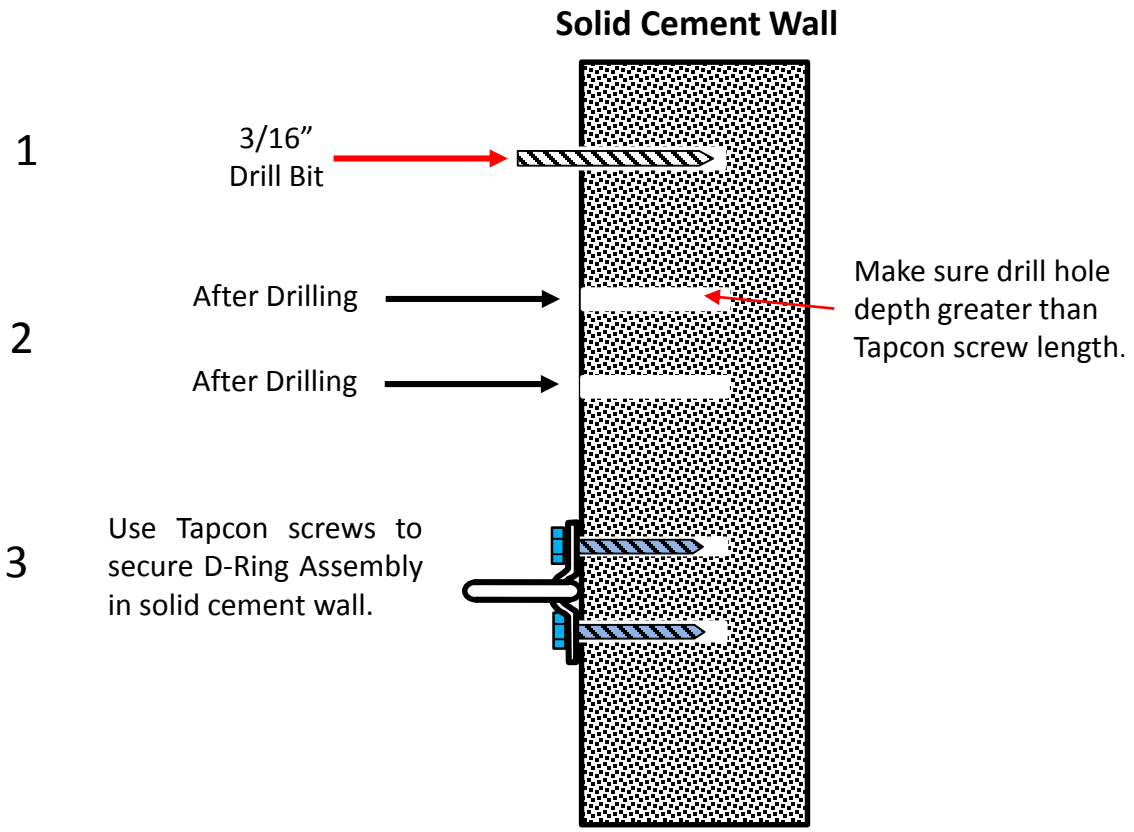
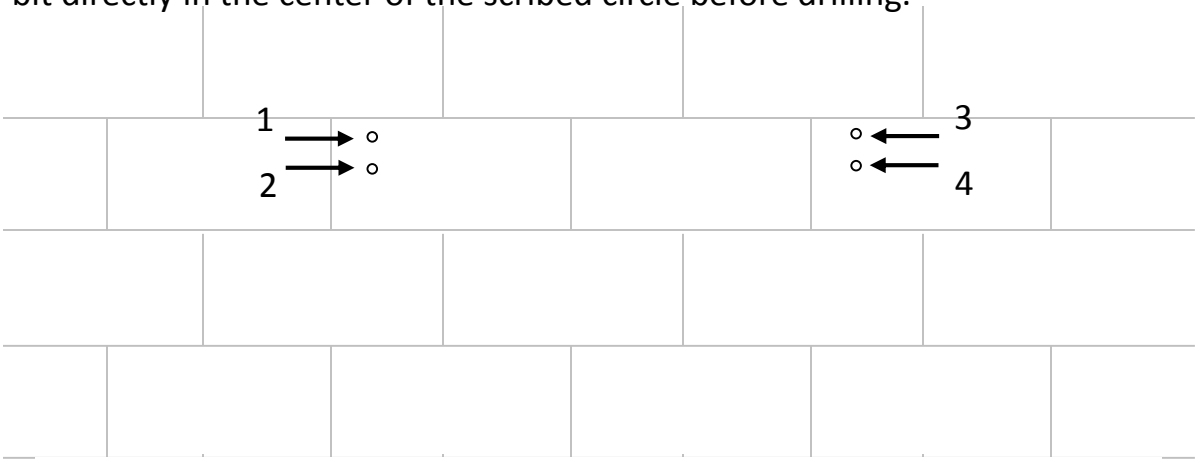


Figure 5A (Drilling Into Solid Cement Walls)
Step 3 – Use only Tapcon Screws in solid cement walls.

Step 4 – Using the 3/16” diameter masonry drill bit, carefully drill out eight pilot holes in the cinder block where marked in Step 2. Be careful to center the bit directly in the center of the scribed circle before drilling.



Important Note: When drilling each hole make sure you mark the holes that where “Hollow Drill Throughs” (see (a) Figure 5) as those holes will require Toggle Bolts and must be drilled out a second time with a ½” masonry bit which is provided with the Cinder Block mounting kit. The holes that are “Solid Drill Throughs” (see (b) Figure 5) will require Tapcon screws and will need to be drilled at least 3 inches deep into the concrete with the 3/16” drill bit so that the Tapcon screw can fully screw into the cement.

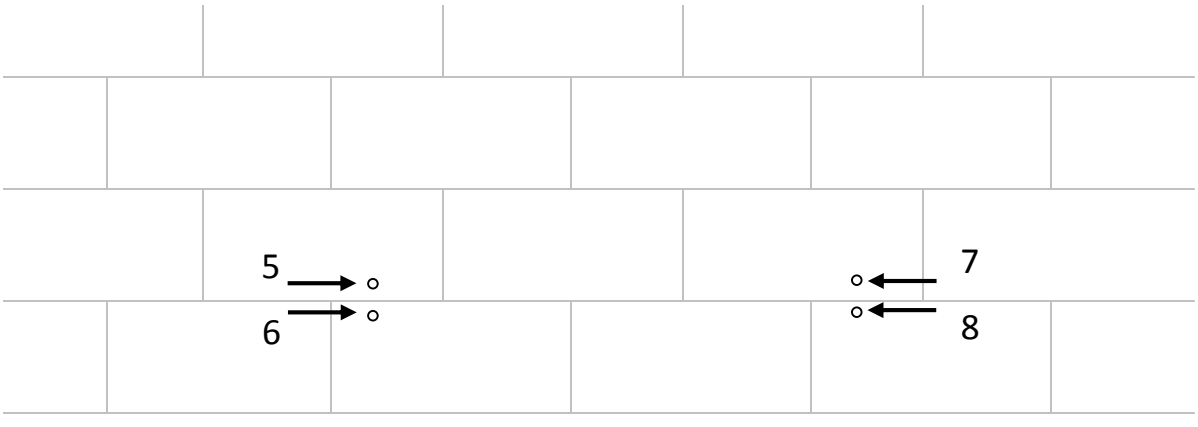


Figure 6
Step 4 – Drilling Out Eight D-Ring Mounting Holes

Step 5 – After drilling all eight holes with the 3/16" masonry bit, use the ½" masonry bit and re-drill all "Hollow Drill Throughs" to expand the initial 3/16" diameter hole to a ½" diameter hole so that the Toggle can pass through the hole and be inserted into the hollow. Figure 7 below shows examples of some fastener combinations you may be required to use based on where holes are drilled into the cinder block. Refer to Figures 8 and 9 to see the actual fastener hardware used Solid and Hollow Drill Throughs.

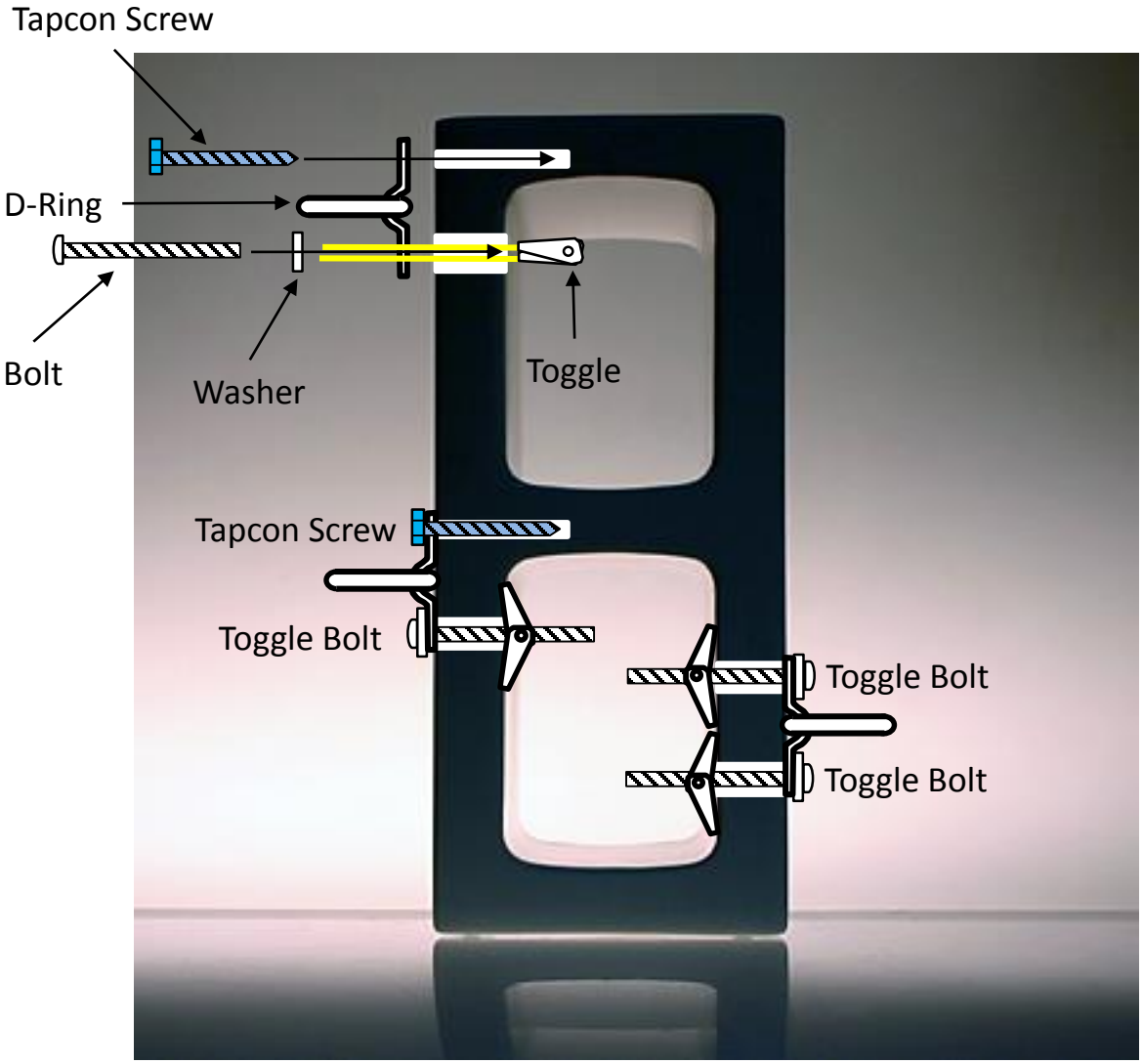


Figure 7
Step 5 – Examples of some fastener combinations used to attach D-Rings to cinder block wall.

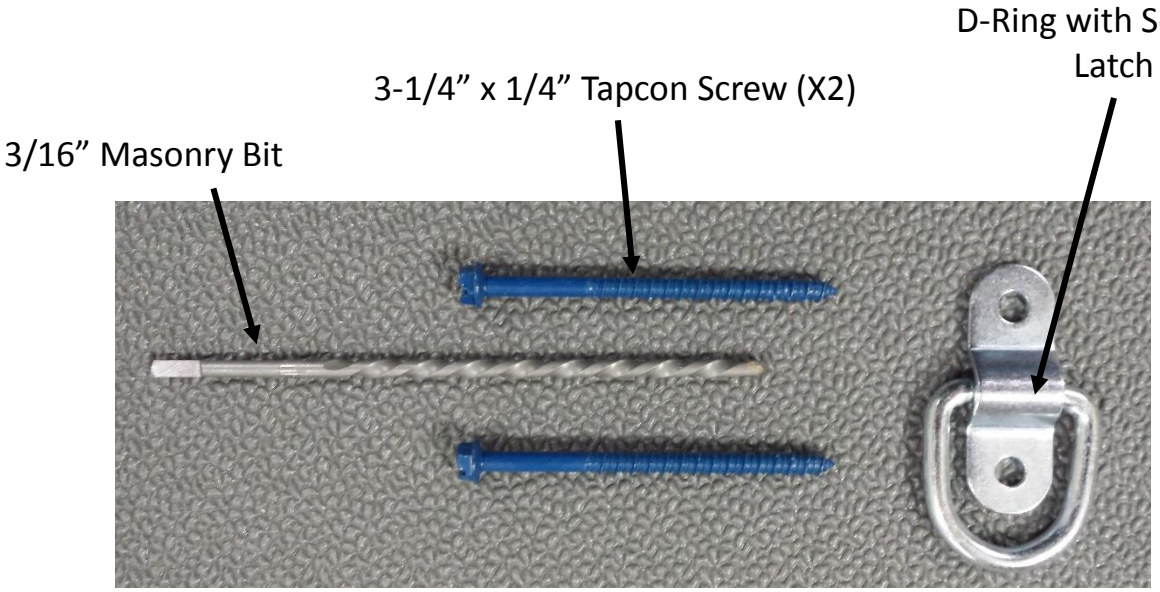


Figure 8
Hardware Required To Mount D-Ring in Solid Cement

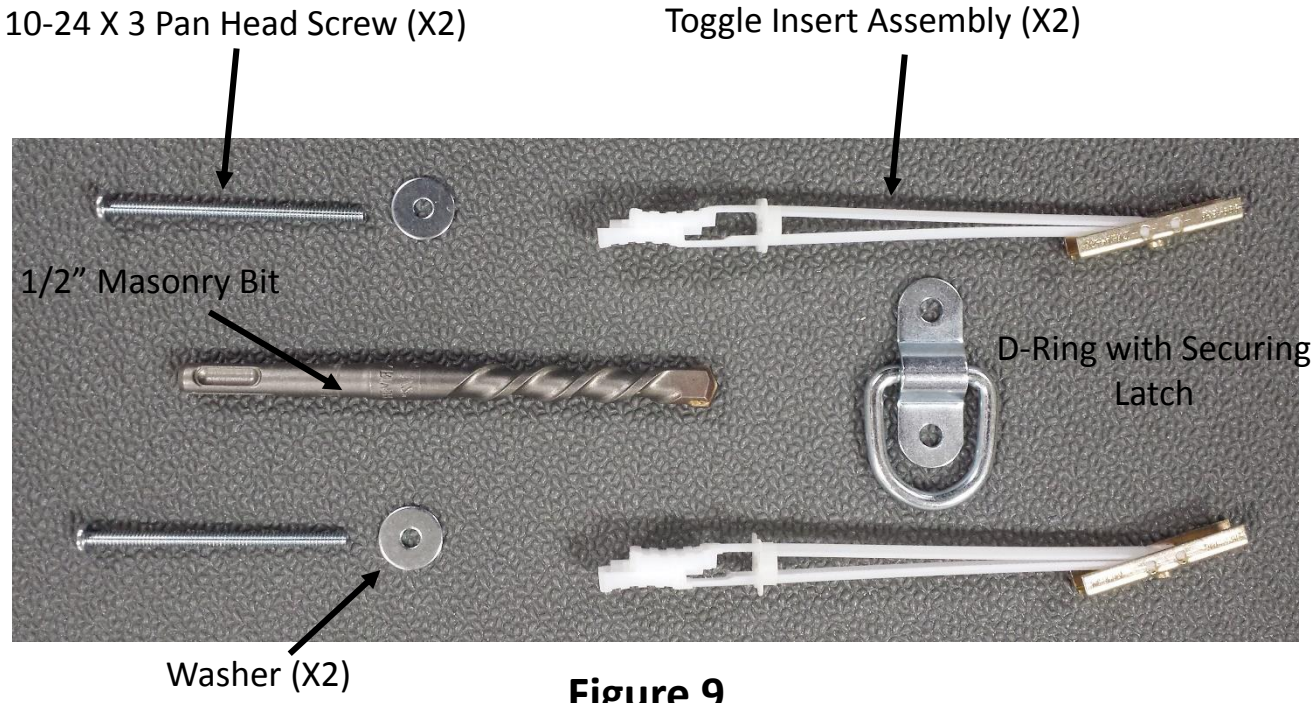


Figure 9
Hardware Required To Mount D-Ring in Cinder Block Hollow

Step 6 – Using the proper fasteners based on a solid drill through or hollow drill through into the cinder block wall, attach all four D-Rings to the cement wall. After attachment the D-rings should be positioned as shown in Figure 10.

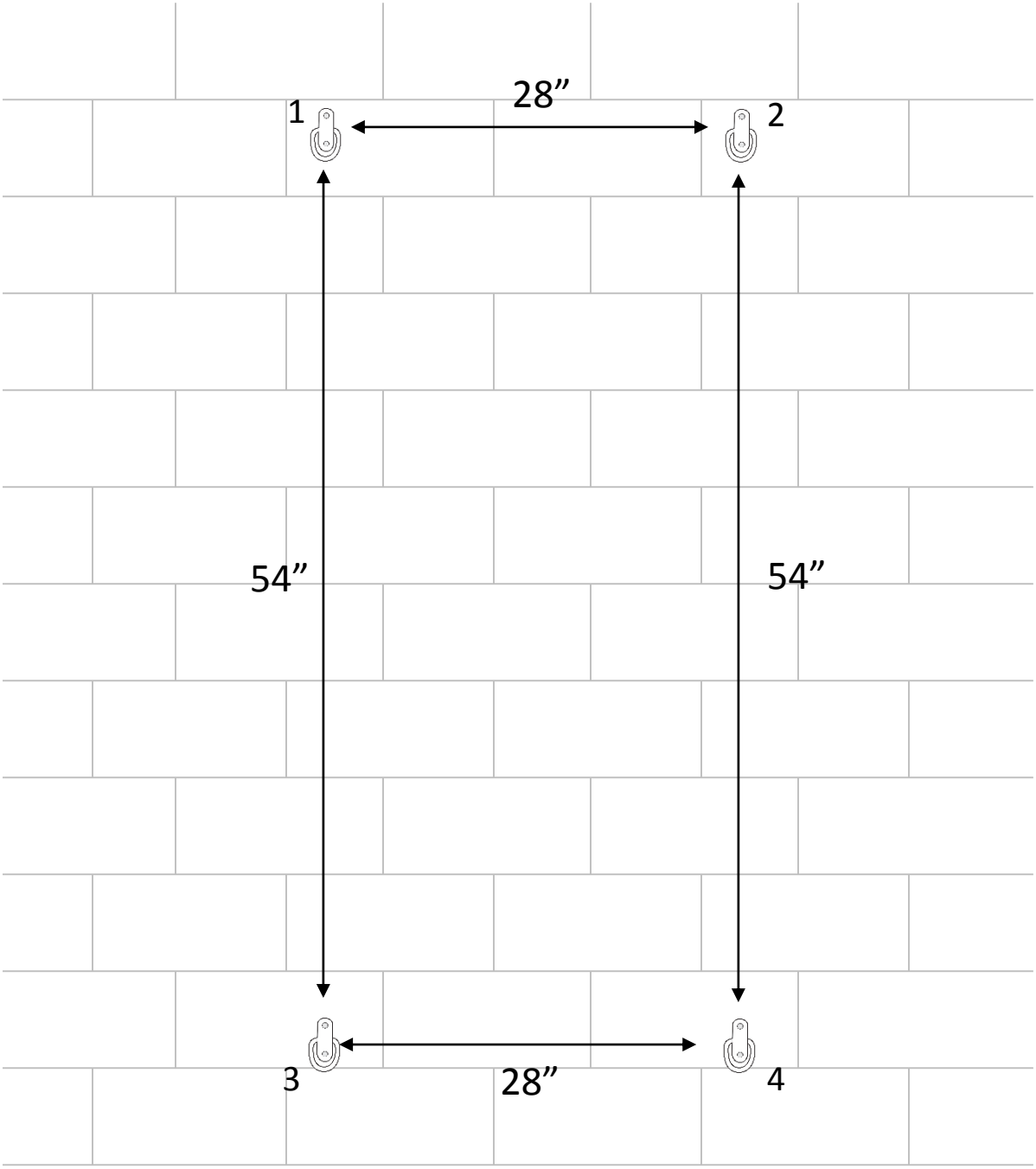


Figure 10
D-Ring Positioning After Fastener Insertion

Step 7 – Use the four Raptor attachment straps to secure the Raptor to the cement wall as shown in Figure 11.

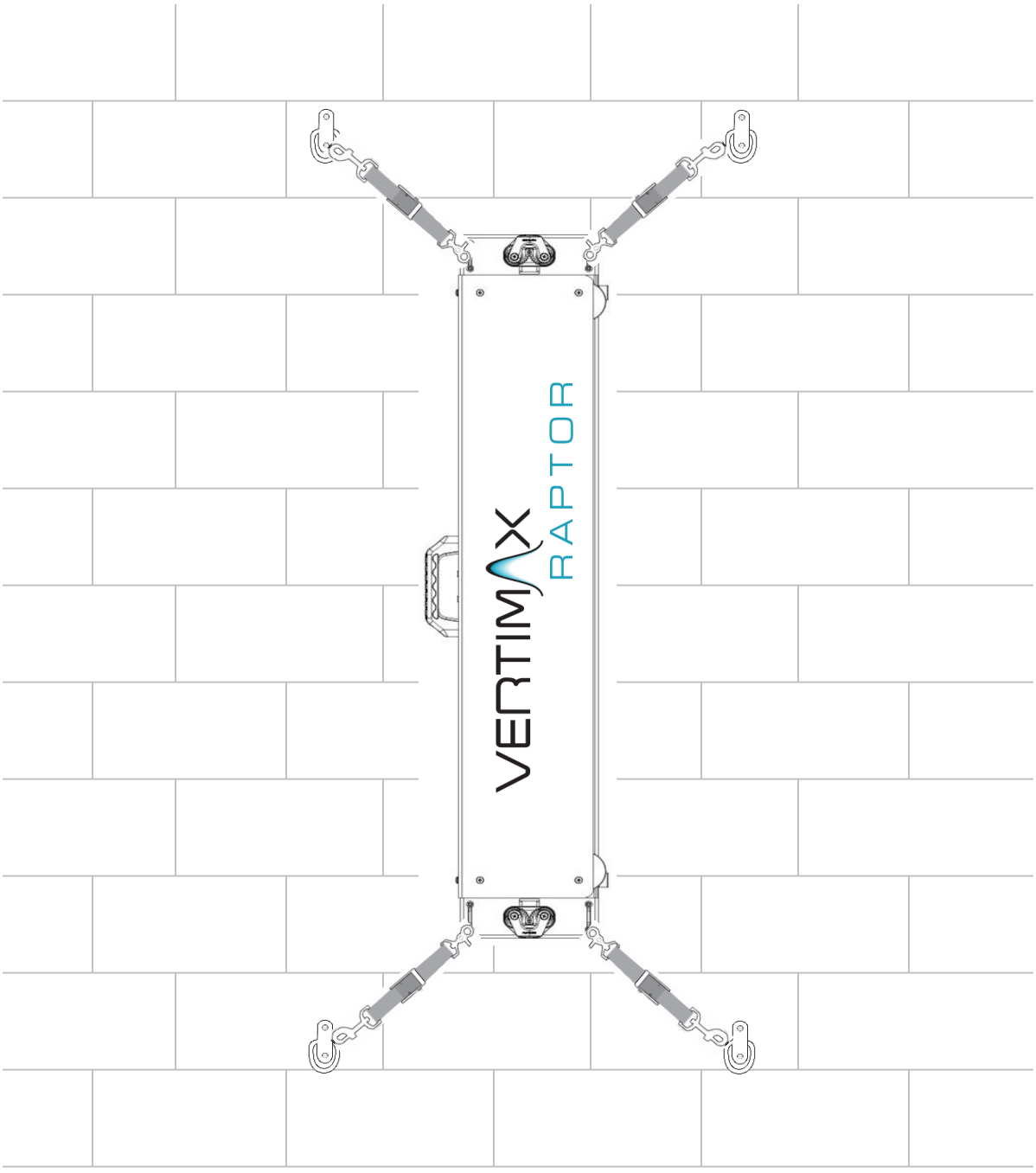


Figure 11
Post Raptor Installation Utilizing Four Attachment Strap Assemblies

Step 8 (Right Side Mount) – Using Figure 12 below, suggested locations for the remaining 8 D-Rings are diagramed for placement on the cement wall. D-Rings 5 & 6 and 7 & 8 are paired 16 inches apart at 6 inches and 18 inches respectively above the ground while D-Rings 9, 10 and 11 are placed 3, 4 and 5 feet respectively above the ground with D-Ring 12 placed 7 feet above the ground.

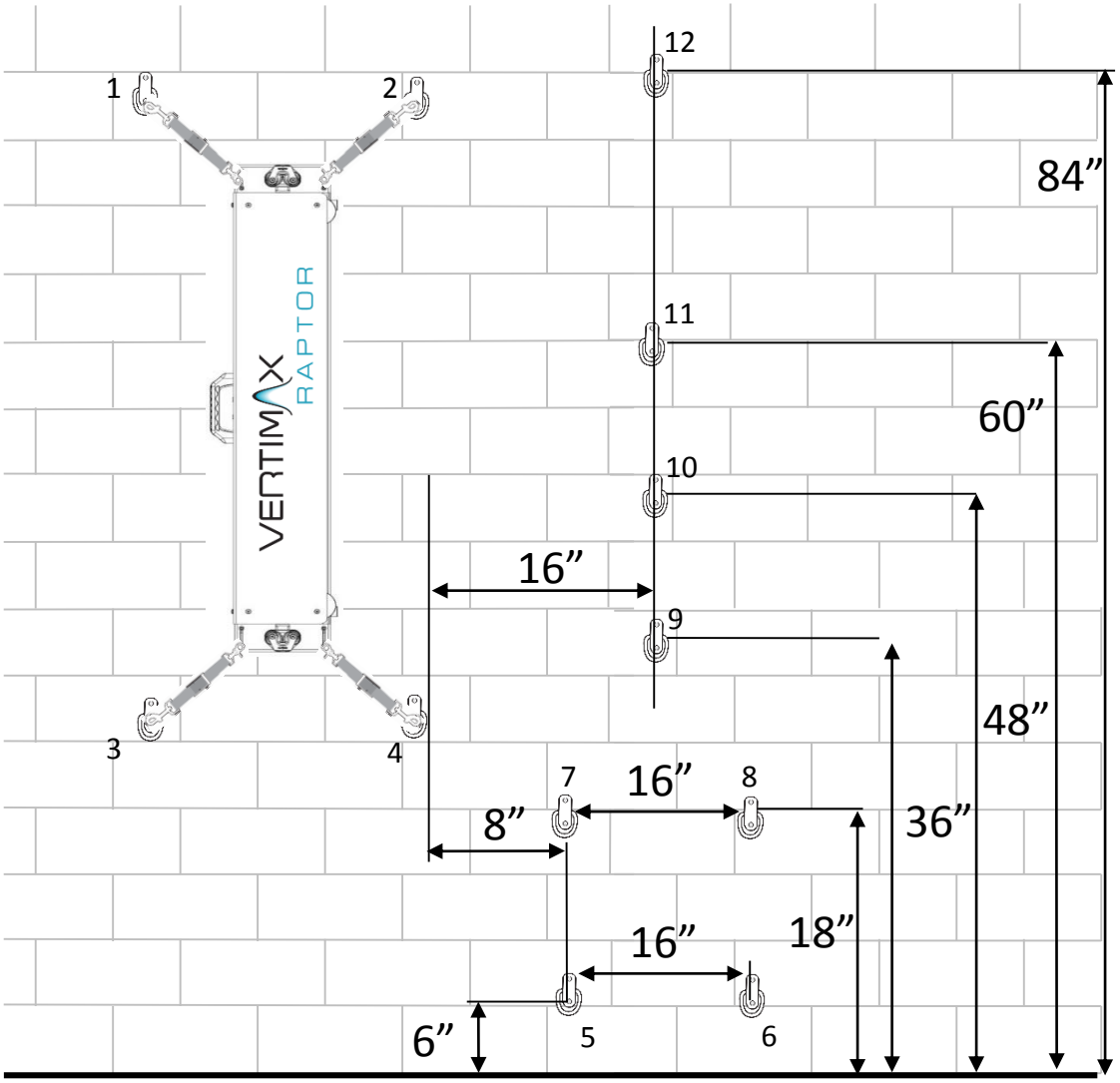


Figure 12
Suggested Placement of D-Rings 5 Thru 12 For Right Side Mount

Step 8 (Left Side Mount) – Using Figure 13 below, suggested locations for the remaining 8 D-Rings are diagramed for placement on the cement wall. D-Rings 5 & 6 and 7 & 8 are paired 16 inches apart at 6 inches and 18 inches respectively above the ground while D-Rings 9, 10 and 11 are placed 3, 4 and 5 feet respectively above the ground with D-Ring 12 placed 7 feet above the ground.

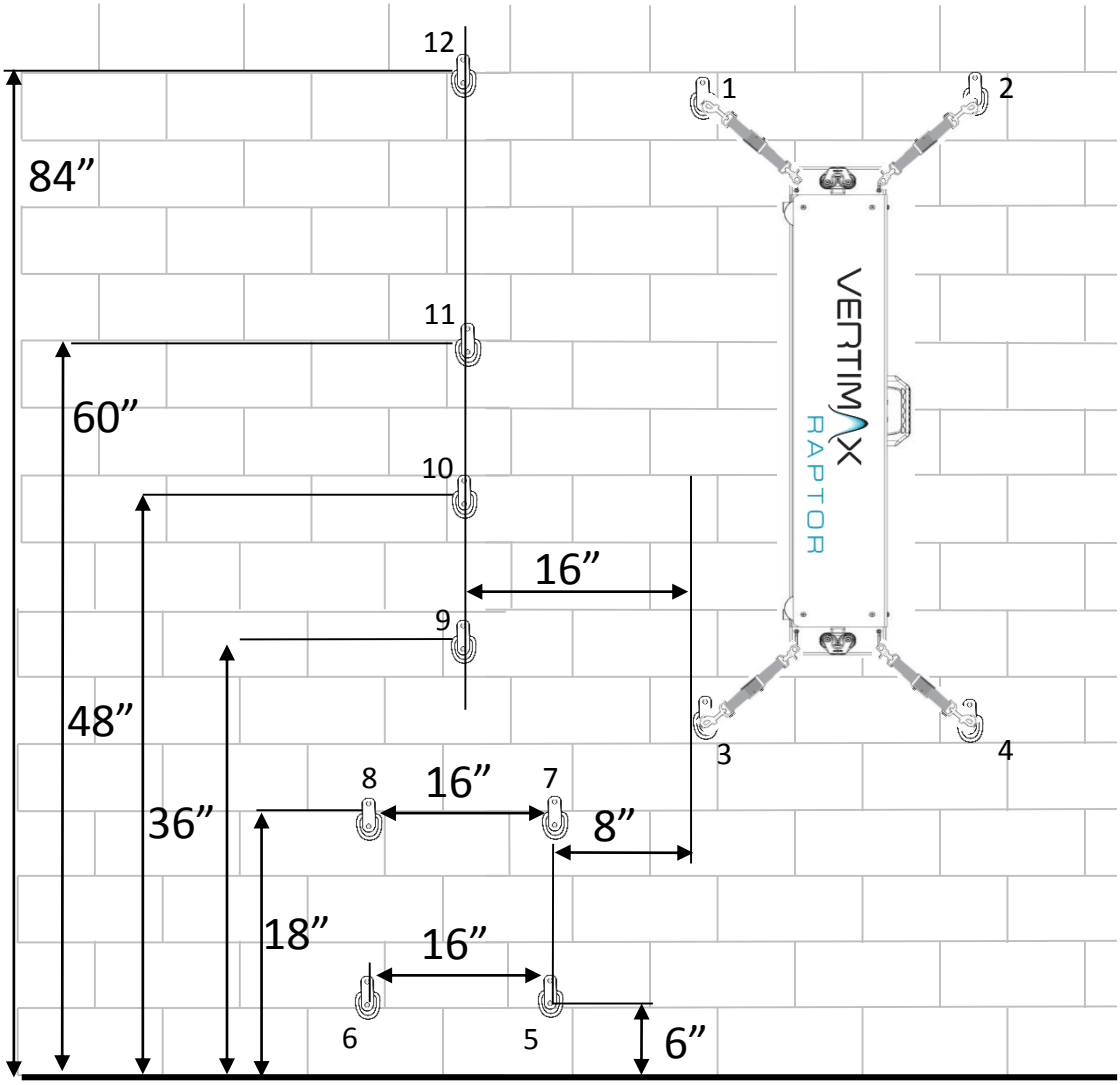


Figure 13
Suggested Placement of D-Rings 5 Thru 12 For Left Side Mount

Raptor Horizontal Wall Mount Instructions For A Cement Wall

A cinder block wall mount will require Wall Mounting Kit 1 while a solid cement wall mount will require a Wall Mounting Kit 2.

Step 1 – Referencing Figure 14, use the measurement specifications to mark the four locations indicated by the red + symbols and associated measurements.

Step 2 - Carefully mark the center of both mounting hole locations on the cement block behind the mounting latch with a marker (see Figures 2 and 3). After marking all four D-Ring locations the markings on the wall indicating drilling locations should appear as in Figure 15.

Step 3 & 4 – Using the 3/16" masonry drill bit, drill out all eight mounting holes. Reference Figures 5 & 6 and accompanying notes informing you that some drilled holes will break into hollow areas in the cinder block while other holes will be drilled into solid cement with no hollow. Each drilled hole that breaks into a hollow area will need to be marked and subsequently drilled out with the ½" masonry drill bit in Step 5 so that it may accept a Toggle fastener. Any hole that does not break into a hollow and it's complete drill depth is into solid material will require a Tapcon screw for that specific hole to secure the D-Ring. Note that some D-Rings may require a toggle bolt in one mounting hole and a Tapcon screw in the second mounting hole. Some D-Rings will require two Tapcon screws or two Toggle assemblies and bolts. **IMPORTANT** – Make sure all holes requiring Tapcon screws are drilled deeper than the length of the Tapcon screw! If the hole is not deep enough the Tapcon screw will bottom out in the hole before it can tighten against the D-Ring mounting latch.

Step 5 – For cinder block walls use the ½" masonry drill bit to further expand the 3/16" hollow drill through holes so that they may accept the ½" diameter Toggle fastener. Reference Figure 7 to see some of the different fastener combinations that may be required on any given D-Ring mounting latch depending on whether the drill bit went through a hollow or through solid material. Figure 8 shows the required mounting hardware and drill bit required if mounting holes encountered solid material for the complete depth of the drill out which will always be the case for a solid cement wall and sometimes be the case for a cinder block wall. Figure 9 shows the required mounting hardware and drill bits required if the 3/16" masonry bit broke into a hollow in a cinder block wall.

Step 6 – Use the proper mounting hardware to secure all four D-Ring assemblies to the cement wall. Use the four Raptor attachment straps to secure the Raptor to the wall as shown in Figure 16.

Raptor Horizontal Wall Mount Instructions For A Cement Wall

Step 7 – Repeat the previous steps 1-6 to mount the remaining 8 D-Rings to the wall. Reference Figure 17 for the locations to mark, drill and then fasten the D-Rings to the wall.

Step 1 –D-Ring mount placement pattern for Mounting D-Rings 1-4 when choosing a Horizontal mount for the Raptor unit.

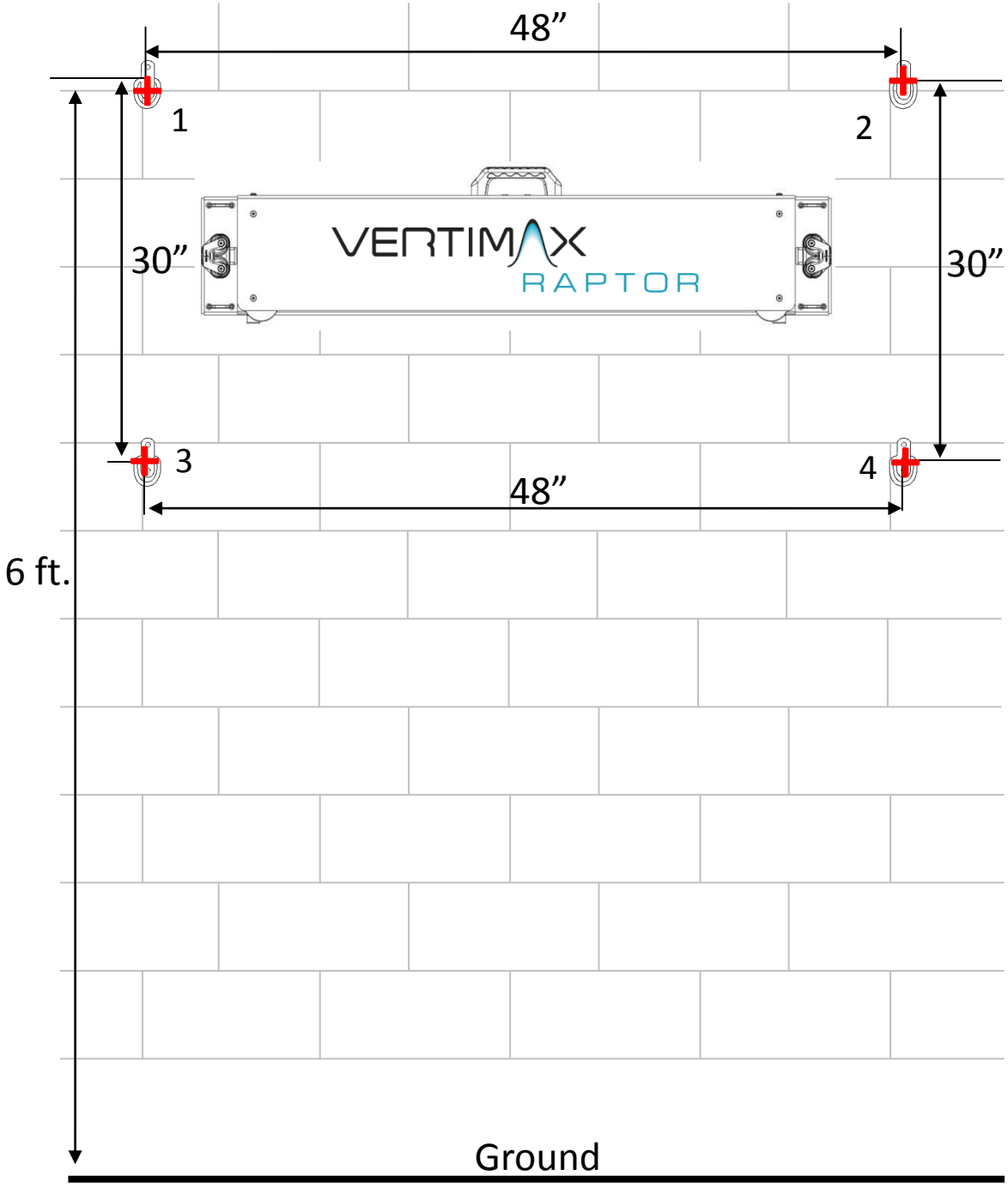


Figure 14
Mounting D-Ring Placement For Horizontal Mount

Step 1 –D-Ring mount placement pattern for Mounting D-Rings 1-4 after marking mounting holes.

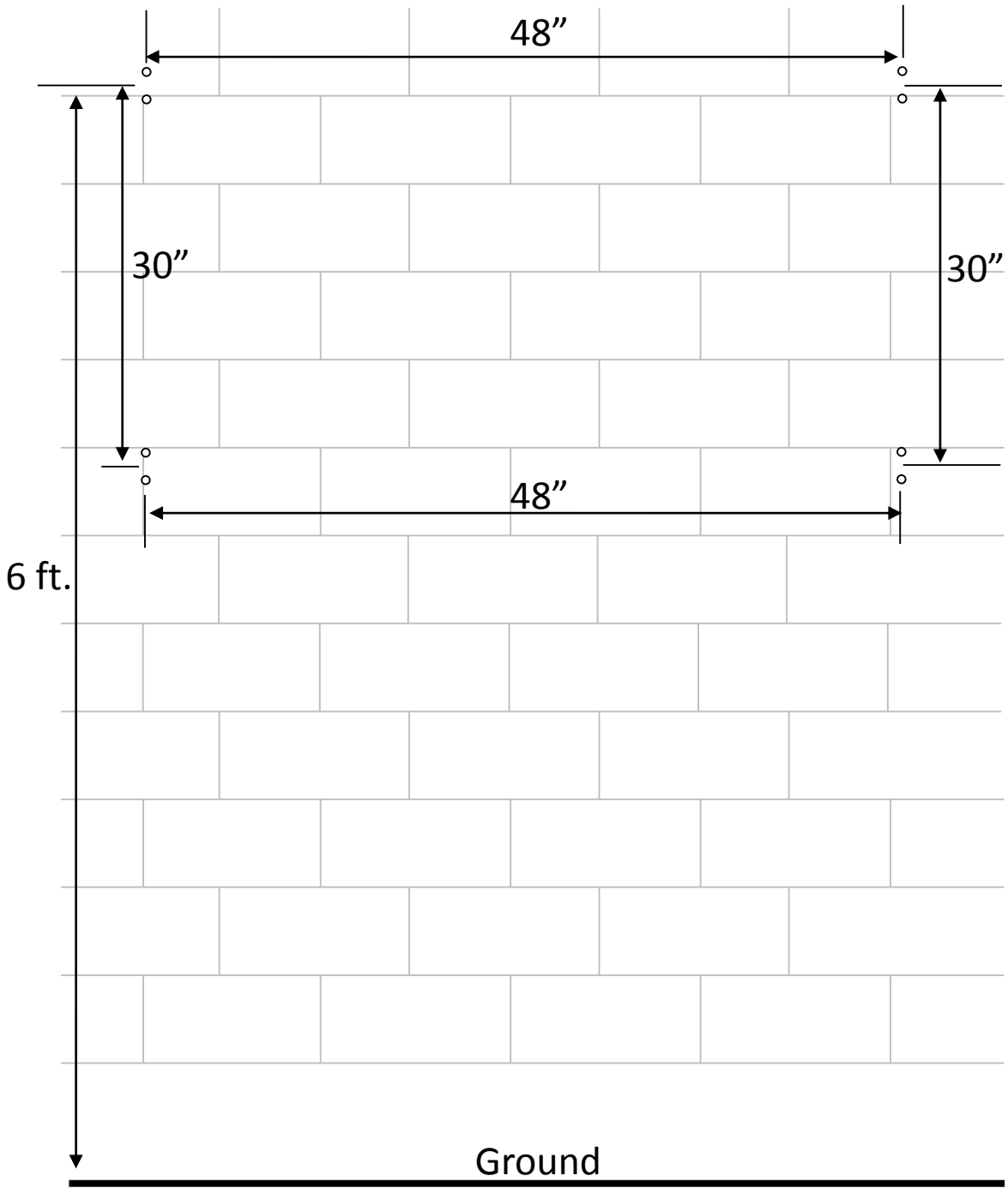


Figure 15
Mounting D-Ring Placement For Horizontal Mount

Steps 2-6 – After mounting D-Rings 1-4 use the four Raptor attachment straps to attach the Raptor unit to the cinder block wall. The Raptor unit when attached to the wall should appear as shown in Figure 14.

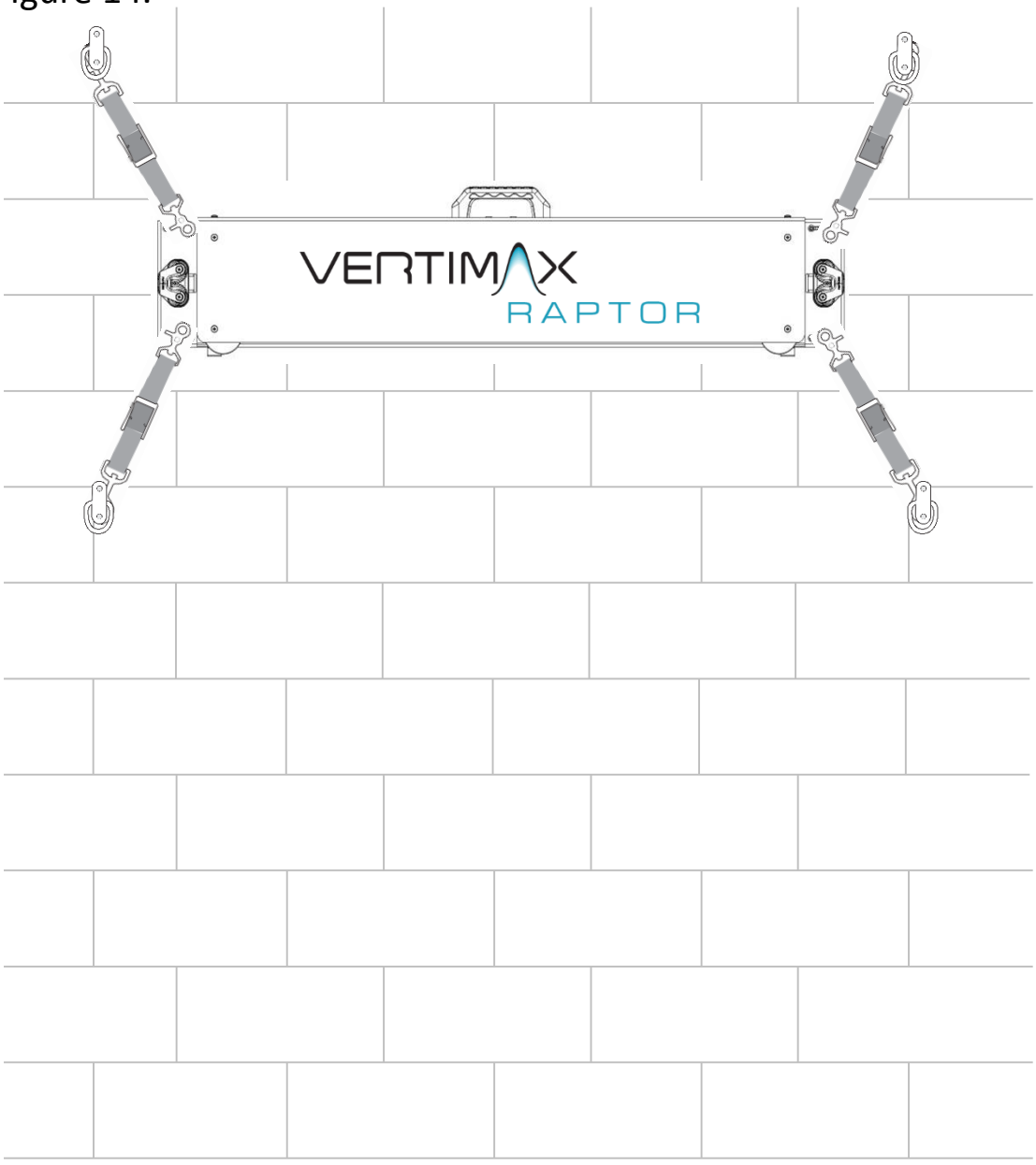


Figure 16
Horizontal Raptor Mount With Attachment Straps Installed

Step 7 – If you choose to mount the Raptor unit horizontally, reference Figure 17 below for suggested locations for the remaining 8 D-Rings which are diagramed for placement on the cinder block wall. Use the marking and drilling procedures outlined in Steps 1-8 to mark and drill mounting holes for D-Rings 5 thru 12.

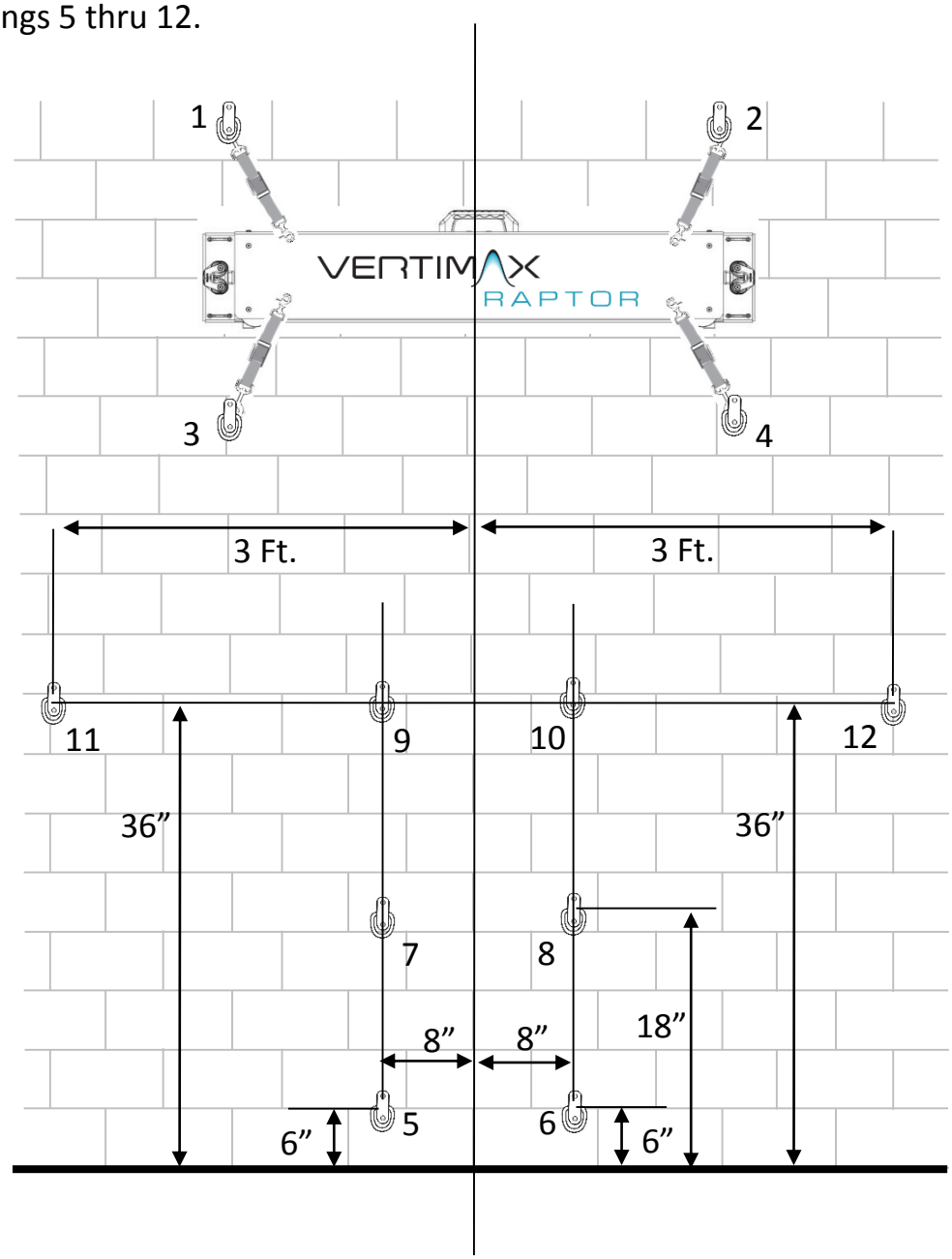


Figure 17

Horizontal Raptor Mount - Suggested Placement of D-Rings 5 Thru 12

Raptor Vertical Wall Mount Instructions For A Wood Structure

INSTALLATION WARNING! When anchoring Raptor support D-Rings to existing metal or wood stud walls with gypsum board finish, the walls may require the installation of additional 2x4 wood blocking. Blocking should be installed between the existing vertical wall studs at the unit mounting height above the finish floor for the width of the Raptor unit and between and around adjacent D-Ring assemblies. Consult a licensed structural engineer to ensure the lateral stability of the existing wall will withstand horizontal point loads of +/- 150 lbs. at each D-Ring mounting point with maximum +/- 300 lb. load per stud.

a) A wood wall mount fastening D-Rings to 2X4 studs or 4" x 4" wood pillars or larger will require Wall Mounting Kit 3 containing ¼" x 3" Lag screws.

b) A wood wall mount fastening D-Rings to ¾" ply wood fastened directly to a solid cement wall will require Wall Mounting Kit 2 consisting of ¼" x 3-1/4" Tapcon cement fasteners.

c) A wood wall mount fastening D-Rings to ¾" ply wood fastened directly to a cinder block wall or with wood or metal studs connecting the ¾" plywood to the cement wall (solid or cinder block) will require Wall Mounting Kit 1 consisting of both ¼" x 3-1/4" Tapcon cement fasteners and Toggle fasteners designed for holes in cinder block hollows.

Step 1 – If mounting into 2X4 wood studs spaced 16" apart, referencing Figure 18 measurement specifications to mark the four D-Ring locations indicated by the red + symbols and associated measurements. IMPORTANT WARNING – It is the responsibility of the installer to ensure all mounting holes are centered exactly in the middle of each wood stud which may be hidden by dry wall. Most often this will be the 2 inch side of the 2X4. Standard wood stud spacing behind dry wall is 16 inches center to center. However, the installer must verify exact stud positioning and alter Figure 18 measurements accordingly so that D-Ring mounting holes are centered properly in the wood studs that have been certified to accept two ¼ X 3" lag screws for each D-Ring assembly and also certified to handle +/- 150 lb. point load at each D-Ring with maximum +/- 300 lb. load per stud. If you are mounting into a solid wood wall such as properly supported ¾" thick or thicker plywood you may use the D-Ring mounting & positioning specifications of Figures 1, 12 and 13.

Step 2 - Carefully mark the center of both mounting hole locations over the wood structure behind the mounting latch with a marker (see Figure 19). After marking all four D-Ring locations the markings on the wall indicating drilling locations should appear as in Figure 20.

Raptor Vertical Wall Mount Instructions For A Wood Structure

Step 3 – Using the 3/16” wood drill bit, drill out all eight mounting holes. Reference Figure 21 and accompanying notes to indicate how holes are drilled and what fastening hardware is used to attach the D-Rings to the wall. Attach all four D-Rings to an approved wall structure making sure the drill holes to mount the D-Rings are exactly centered on the wood studs.

Step 4 – After mounting the four Raptor support D-Rings the D-Ring configuration on the wall should appear as shown in Figure 22. Attach the four Raptor Attachment straps and attach the Raptor unit to the wall as shown in Figure 23.

Step 5 – If you want to train off the right side of the Raptor unit, use the Figure 24 template to place the additional eight D-Rings on the wall surface to the right of the unit. If you want to train on the left side of the Raptor unit, rotate the unit 180 degrees and reference Figure 25 for placement of the remaining eight D-Rings to the left of the Raptor unit. Remember when marking the mounting locations of each D-Ring that it is critical that the holes drilled for the lag screw are exactly centered in the middle of the stud. If the holes are drilled off center the stud will likely split or be weakened significantly and the D-Ring will not be secured properly. In such a case the D-Ring could detach from the wall causing serious injury when the Raptor is in use.

Step 1 – After locating the exact center of adjacent vertical 2X4 studs, mark the approximate four D-Ring locations on the wall (+) with vertical and horizontal spacing as shown by Figure 18. Note the 16" measurement is approximate since the actual center-to-center location between the studs will define the exact measurement. Also the vertical position of lower D-Rings should be 16 to 24 inches above the ground.

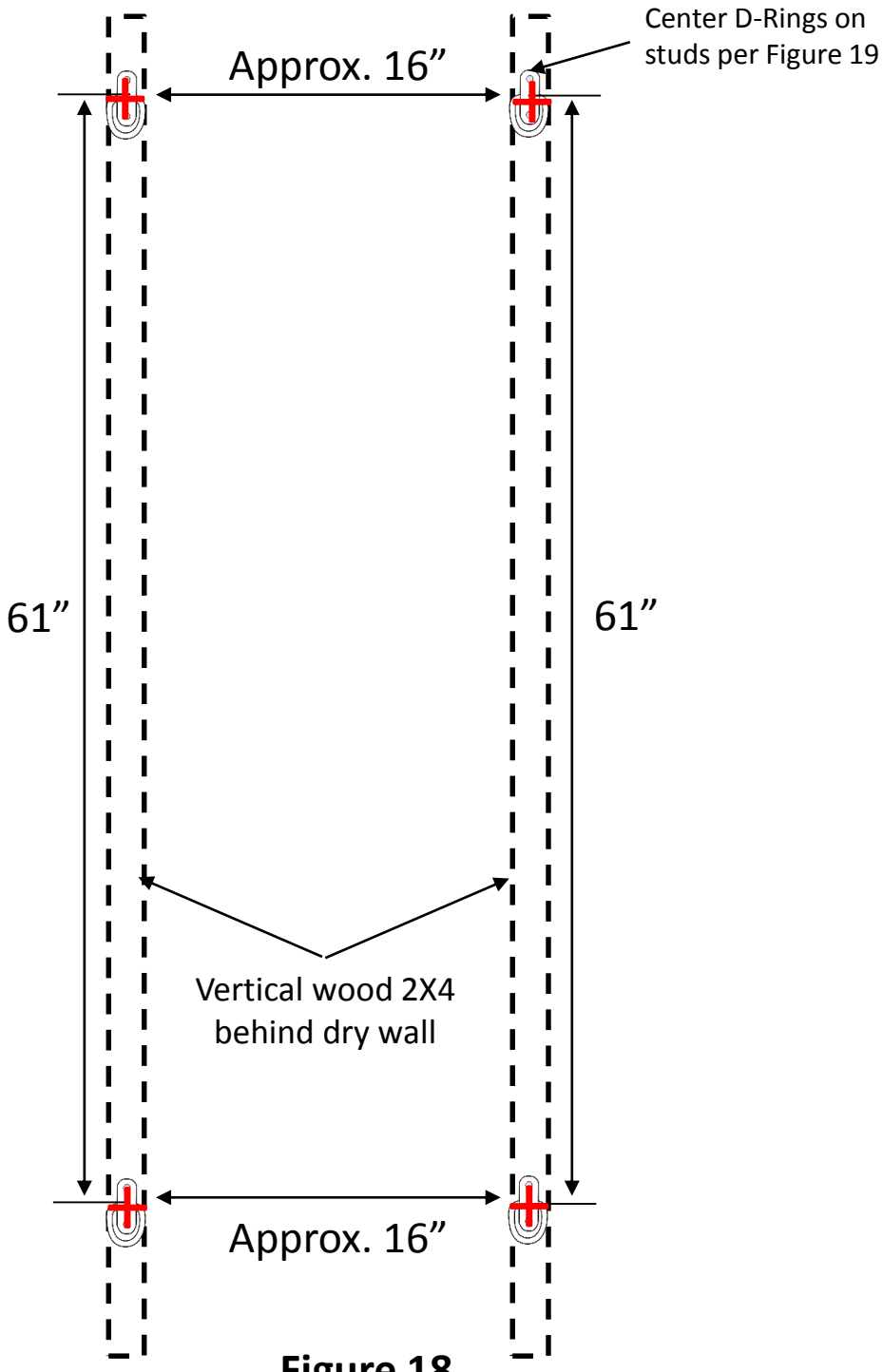
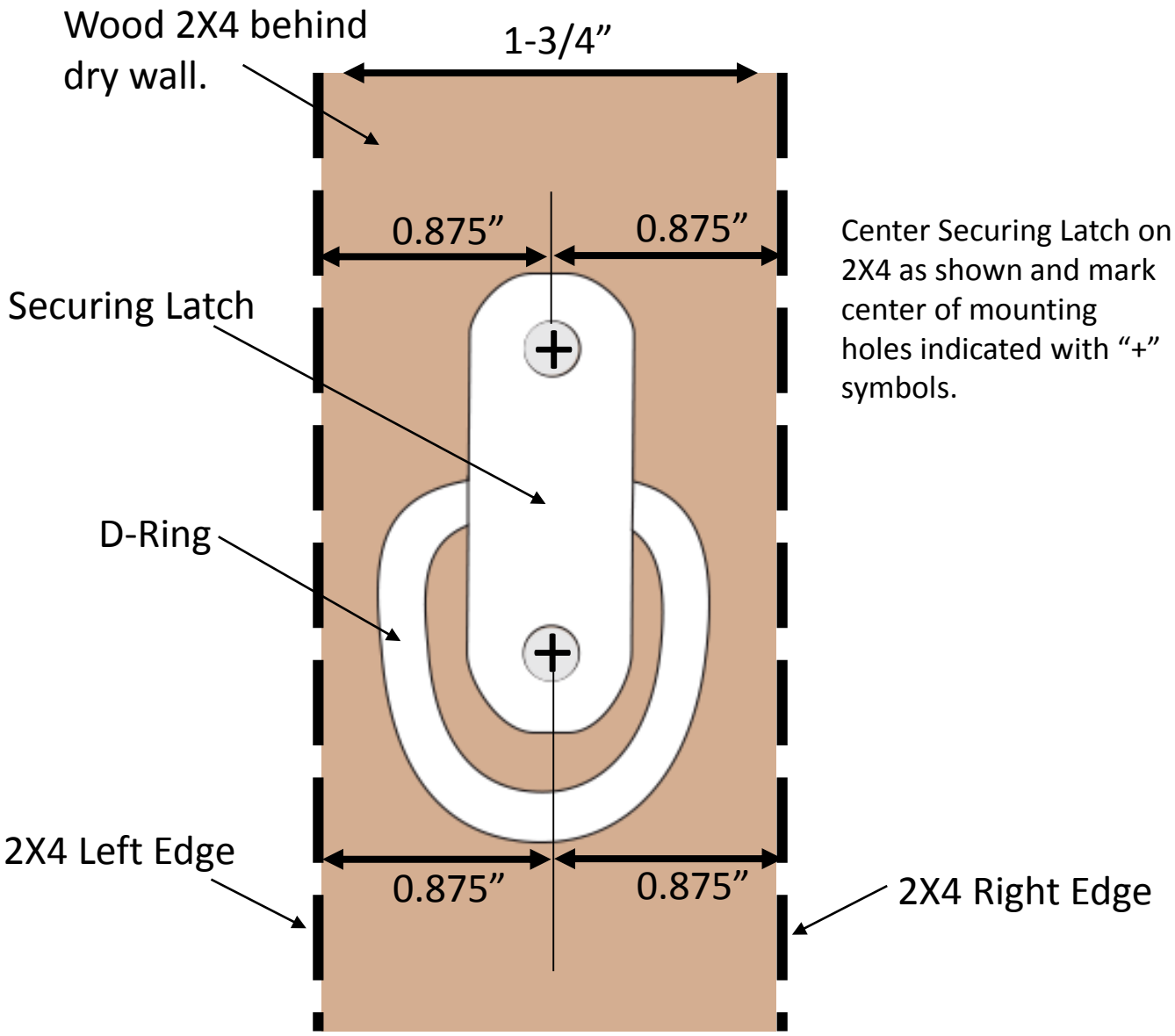


Figure 18

2X4 Wood Stud Vertical Wall Mount "D" Ring Placement



IMPORTANT! The D-Ring securing latch with two mounting holes must be centered as shown in the middle of the 2 inch face of the 2X4 which lays behind the dry wall. Use a stud finder and small finishing nail to locate the edges of the 2X4. Hammering the finishing nail into the dry wall moving left and right after the 2X4 is located will enable you to determine when the finishing nail hits the 2X4 behind the dry wall or simply passes through dry wall into air behind the wall. Repeated piercing the dry wall with the nail will allow you to accurately locate the 2X4 edges and center the D-Ring’s Securing Latch and then mark the mounting hole centers prior to drilling pilot holes.

Figure 19

2X4 Wood Stud Vertical Wall Mount “D” Ring Placement

Step 2 – When Step 1 is completed you should have eight drill hole marks on the wall as shown in Figure 4 below.

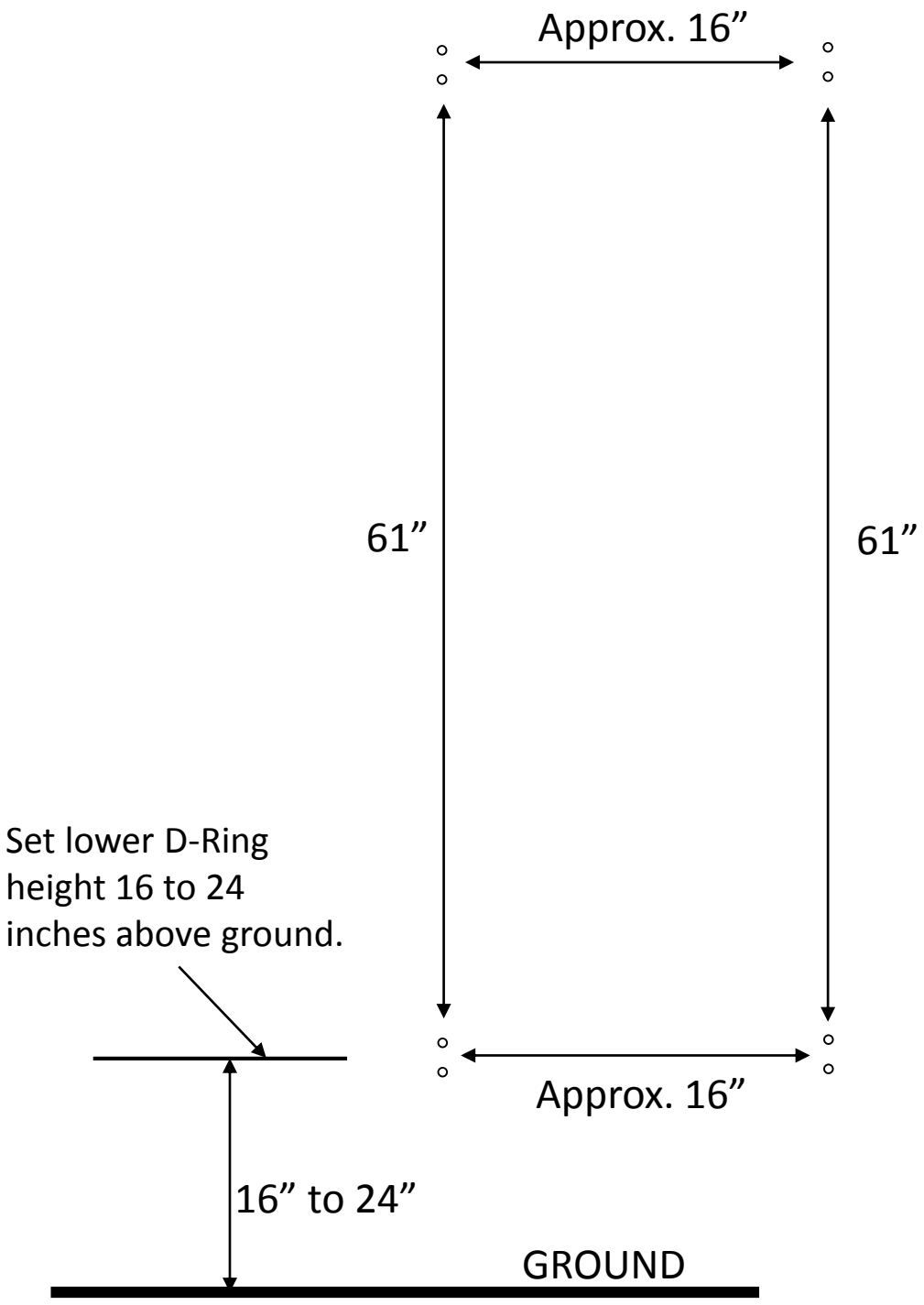


Figure 20
Wood Structure Vertical Mount “D” Ring Placement

Step 3 – Referencing Figure 21, use the 3/16” drill bit that comes in Kit 3 to drill out each of the eight marked mounting holes. Use a 7/16” wrench to screw in each of the two lag screws required to fasten each of the four D-Ring assemblies to the wall.

The 3/16” drill bit and both ¼ x 3” lag bolts required to fasten the D-Ring assembly to the wall are shown to the left. Kit 3 supplies enough lag bolts to attach 12 D-Rings to a wall.

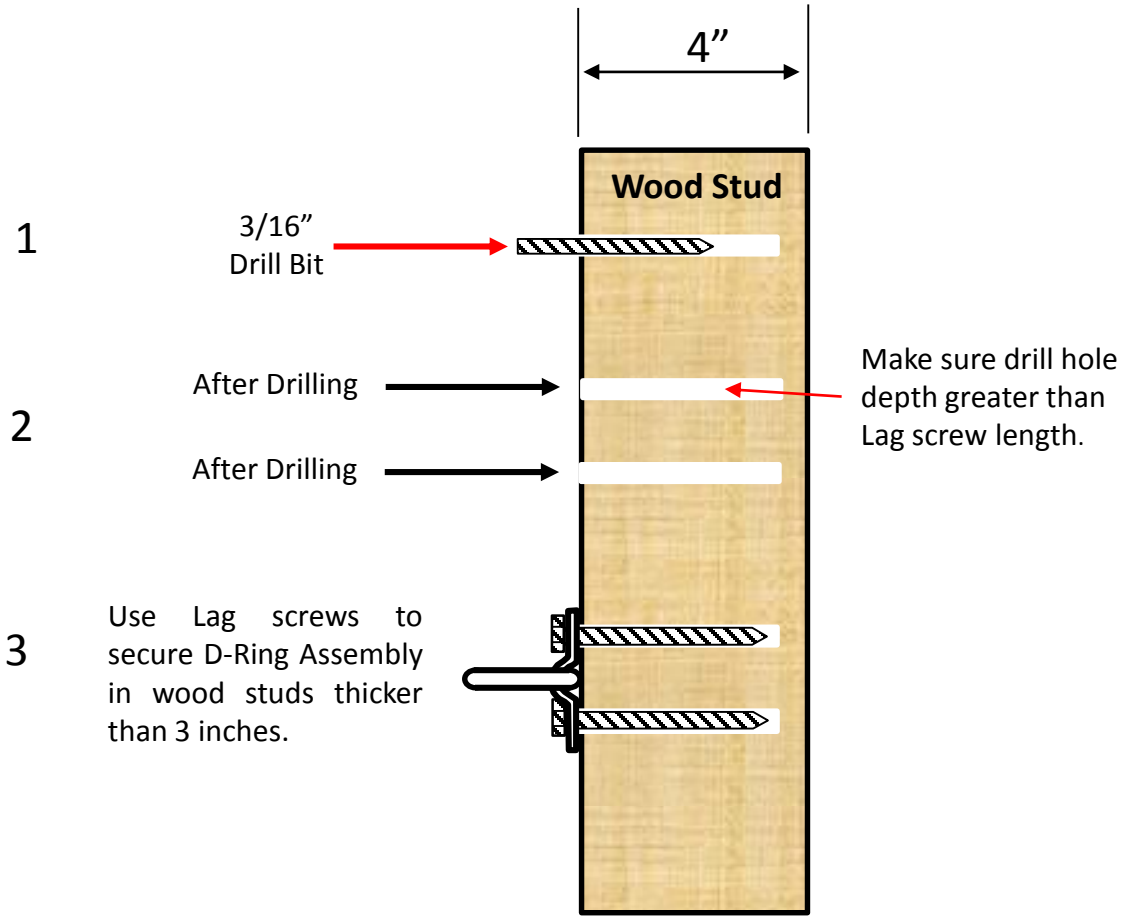


Figure 21 (Drilling Into Solid Wood Studs)
Step 3 – Use Kit 3 Lag Screws in solid wood studs.

Step 4 – After attaching all four Raptor support D-Rings on the wall the placement of the D-Rings should appear as shown in Figure 22. Next, using the four attachment straps, connect all four straps to a corner of the Raptor unit and attach the Raptor to the wall. He mounted Raptor unit should appear as shown in Figure 23.

Figure 22

Figure 23

Step 5 (Right Side Mount) – Using Figure 24 below, suggested locations for the remaining 8 D-Rings are diagramed for placement on the wall. D-Rings 5 & 6 and 7 & 8 are paired 16 inches apart at 6 inches and 18 inches respectively above the ground while D-Rings 9, 10 and 11 are placed 3, 4 and 5 feet respectively above the ground with D-Ring 12 placed 7 feet above the ground.

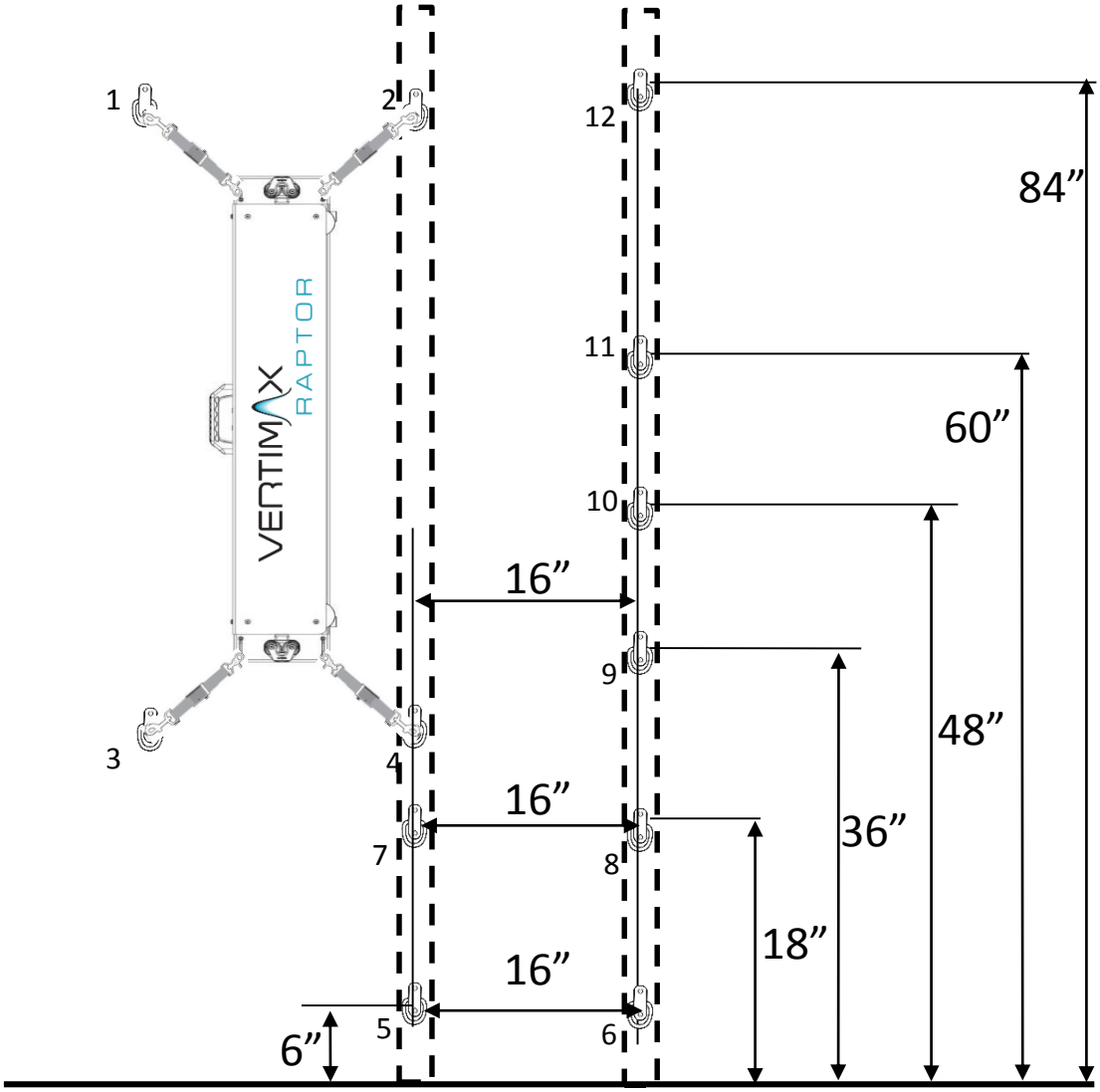


Figure 24
Suggested Placement of D-Rings 5 Thru 12 For Right Side Mount

Step 5 (Left Side Mount) – Using Figure 25 below, suggested locations for the remaining 8 D-Rings are diagramed for placement on the wall. D-Rings 5 & 6 and 7 & 8 are paired 16 inches apart at 6 inches and 18 inches respectively above the ground while D-Rings 9, 10 and 11 are placed 3, 4 and 5 feet respectively above the ground with D-Ring 12 placed 7 feet above the ground.

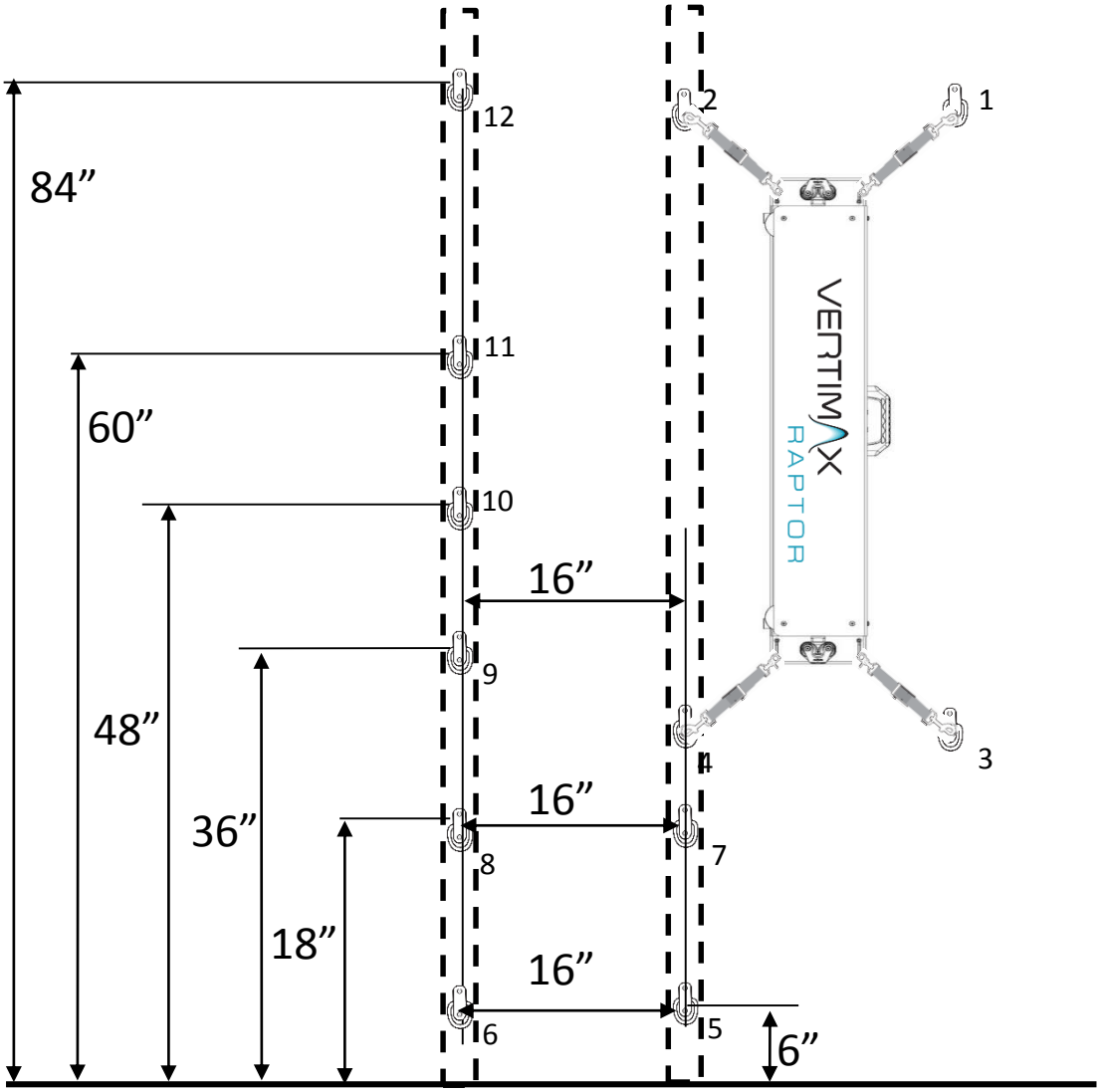


Figure 25
Suggested Placement of D-Rings 5 Thru 12 For Left Side Mount

Raptor Horizontal Wall Mount Instructions For A Wood Structure

A wood structure wall mount will require Wall Mounting Kit 3.

Step 1 – If mounting into 2X4 wood studs spaced 16" apart, referencing Figure 26 measurement specifications to mark the four D-Ring locations indicated by the red + symbols and associated measurements. IMPORTANT WARNING – It is the responsibility of the installer to ensure all mounting holes are centered exactly in the middle of each wood stud which may be hidden by dry wall. Most often this will be the 2 inch side of the 2X4. Standard wood stud spacing behind dry wall is 16 inches center to center. However, the installer must verify exact stud positioning and alter Figure 18 measurements accordingly so that D-Ring mounting holes are centered properly in the wood studs that have been certified to accept two ¼ X 3" lag screws for each D-Ring assembly and also certified to handle +/- 150 lb. point load at each D-Ring with maximum +/- 300 lb. load per stud. If you are mounting into a solid wood wall such as properly supported ¾" thick or thicker plywood you may use the D-Ring mounting & positioning specifications of Figures 1, 12 and 13.

Step 2 - Carefully mark the center of both mounting hole locations over the wood structure behind the mounting latch with a marker.

Step 3 – Using the 3/16" wood drill bit, drill out all eight mounting holes. Reference Figure 21 and accompanying notes to indicate how holes are drilled and what fastening hardware is used to attach the D-Rings to the wall. Attach all four D-Rings to an approved wall structure making sure the drill holes to mount the D-Rings are exactly centered on the wood studs. After mounting the four Raptor support D-Rings the D-Ring configuration on the wall with Raptor attached to the wall should appear as shown in Figure 28.

Raptor Horizontal Wall Mount Instructions For A Cement Wall

Step 7 – Repeat the previous steps 1-6 to mount the remaining 8 D-Rings to the wall. Reference Figure 17 for the locations to mark, drill and then fasten the D-Rings to the wall.

Step 1 – After locating the exact center of adjacent vertical 2X4 studs, mark the approximate four D-Ring locations on the wall (+) with vertical and horizontal spacing as shown by Figure 18. Note the 16" measurement is approximate since the actual center-to-center location between the studs will define the exact measurement. Also the vertical position of lower D-Rings should be 16 to 24 inches above the ground.

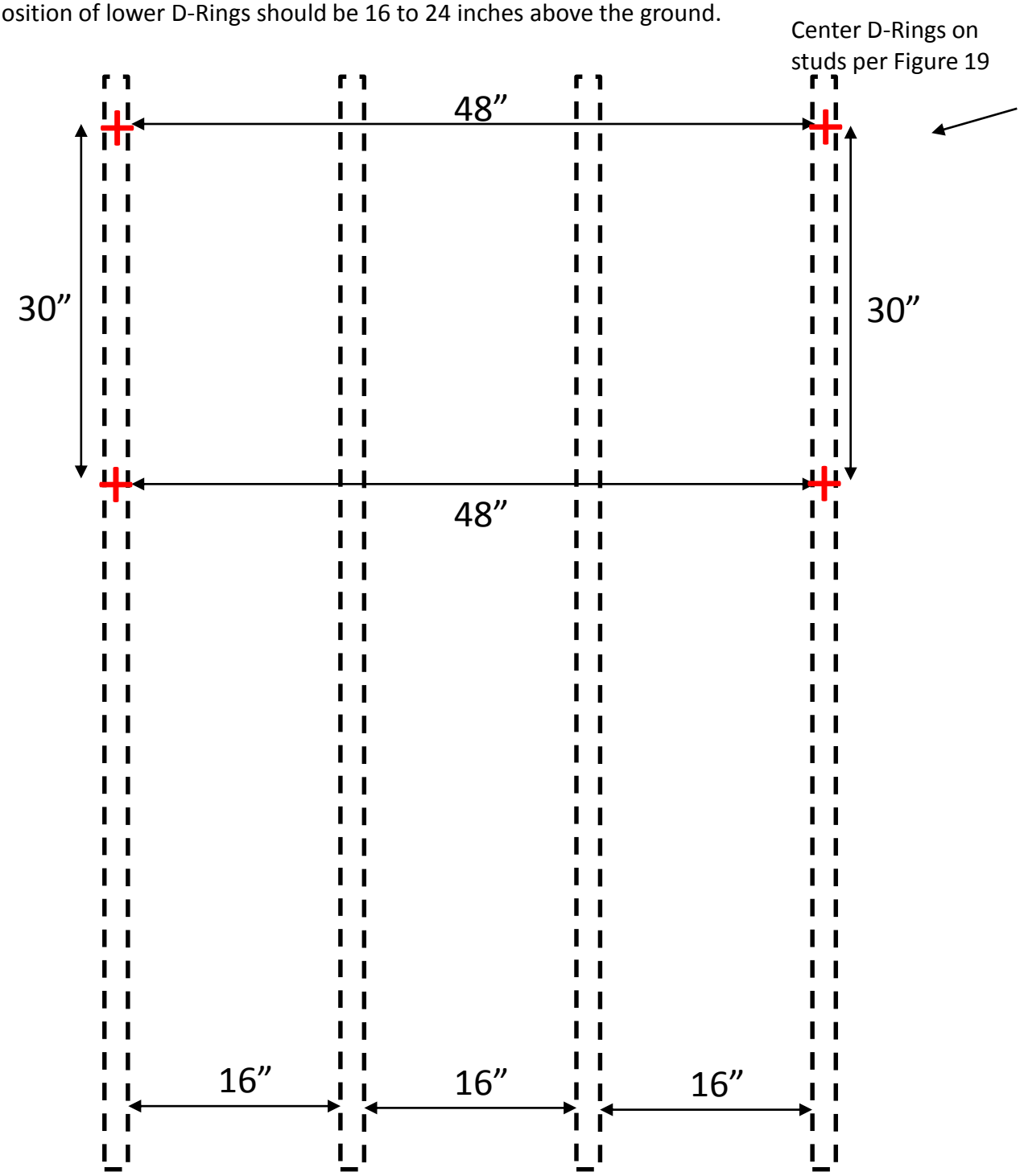


Figure 26
Dry Wall Horizontal Mount "D" Ring Placement

Step 2 & 3 – After locating the exact center of adjacent vertical 2X4 studs, mark the approximate four D-Ring locations on the wall (+) with vertical and horizontal spacing as shown by Figure 18. Note the 16” measurement is approximate since the actual center-to-center location between the studs will define the exact measurement. Also the vertical position of lower D-Rings should be 16 to 24 inches above the ground.

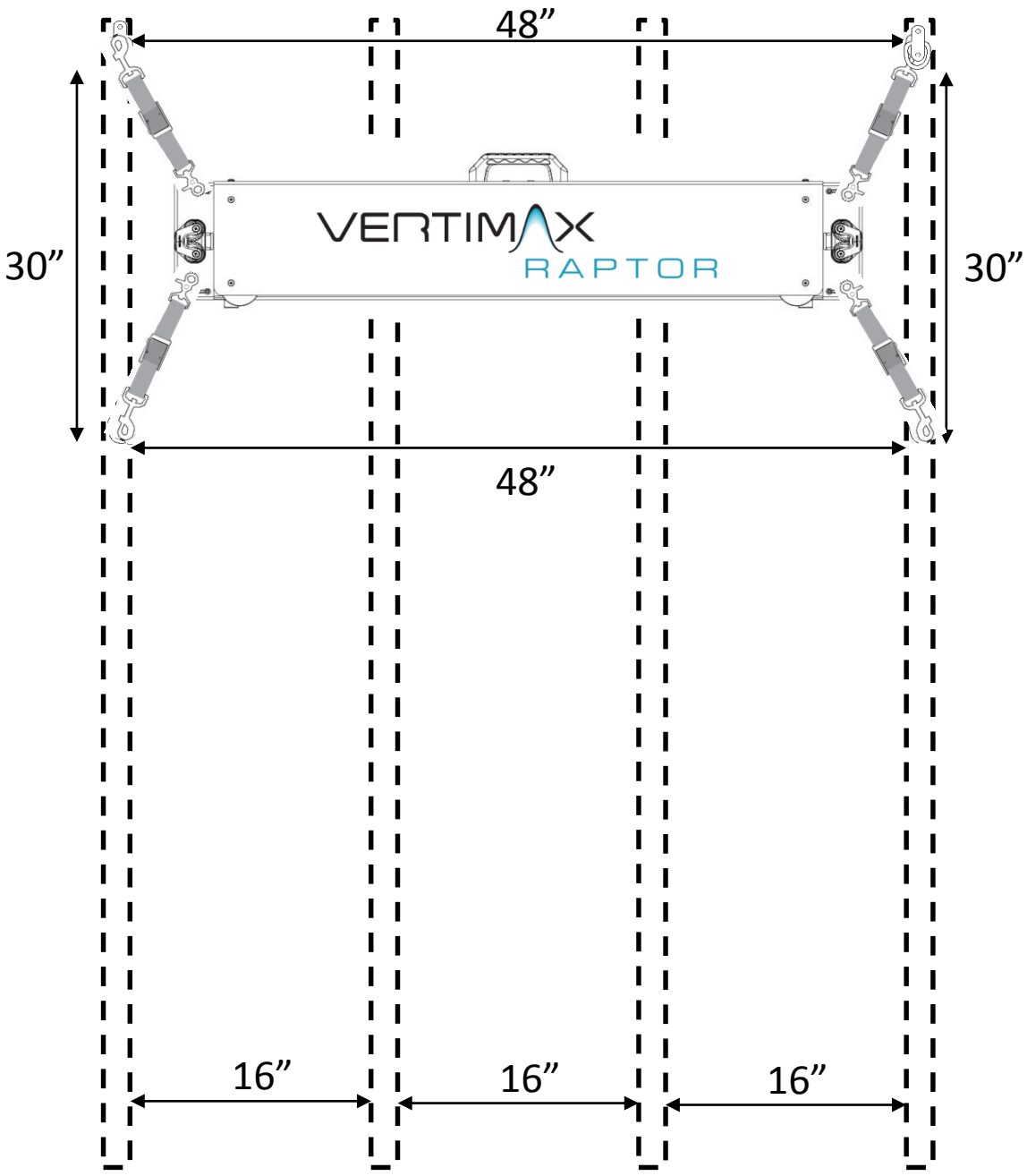


Figure 27
Dry Wall Horizontal Mount “D” Ring Placement

Step 4 – If you choose to mount the Raptor unit horizontally, reference Figure 28 below for suggested locations for the remaining 8 D-Rings which are diagramed for placement on the wall. Use the marking and drilling procedures outlined in Steps 1-8 to mark and drill mounting holes for D-Rings 5 thru 12.

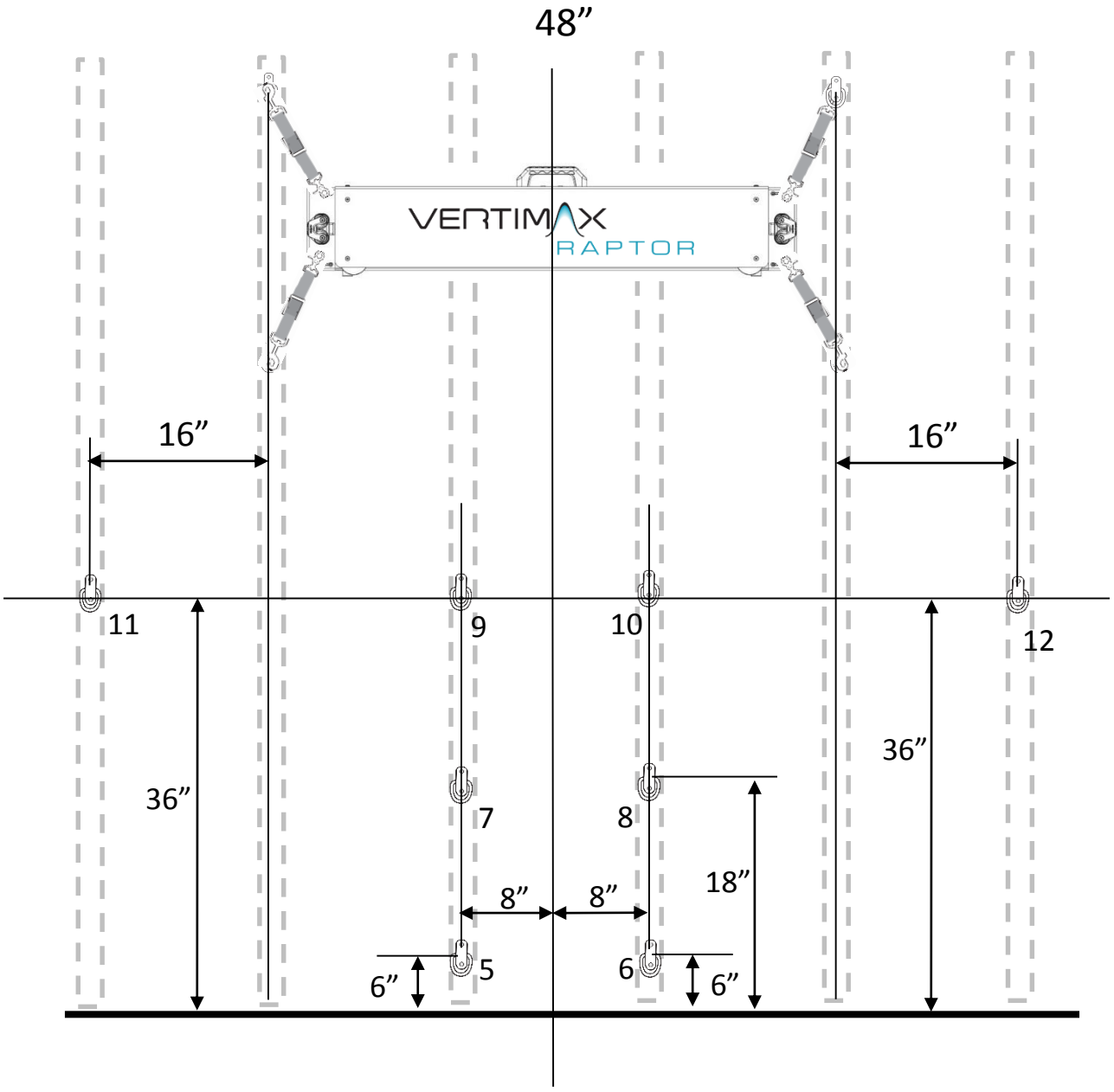


Figure 28

Horizontal Raptor Mount - Suggested Placement of D-Rings 5 Thru 12