



## **Abacus**

installation instructions

NOTES: Please inspect your shipping pallets/packages before signing off on delivery. If there is any damage, you should take photos of the damage and refuse the delivery so it is returned to us for replacement. If you do this, we can also file a claim with the shipping company.

If you choose to accept the delivery, make sure you take photos of any damage. We might be able to help you determine what needs to be replaced, but filing a claim for the damage may not be possible.

Note that in instances where you have ordered a large number of products from us, the Abacus may come mostly assembled.

\*Please call **Digsafe** and check for any underground utilities before digging anywhere.

### **Materials needed (not all may be needed)**

Cordless driver, star drive bit, Phillips head bit, 1/4" hex drive bit, 1/4"x6" wood drill bit, carpenter's square, 8" adjustable wrench, 4' piece of rebar to stir the concrete in the post holes, 24 5" structural screws, and 24 6" structural screws (in a bag), six pieces of 1x3 x8' strapping (from each of 4 pieces of strapping, cut off a 12" piece and make a point on the ends of the 12" pieces to make stakes), and 12 sheetrock screws, Post hole shovel, level, tape measure, 80 lb bags of premixed concrete (not included). Concrete amounts can be easily calculated at <http://www.quikrete.com/Calculator/Main.asp>. Amount required depends on how deep you dig the holes.

- 1) Open the packages/pallet wrappings, remove all items, and spread them out so you can see what you have.
- 2) The Abacus should have either a preassembled roof or 2 boards that make a roof, 4 4x4 pieces that fasten together to make 2 long posts, a centerpiece that has metal bars that hold the tennis balls, a bag of tennis balls (unless you ordered the wooden balls), and a bag of fasteners. All parts that need to be fastened together should have pre-drilled holes for the screws.
- 3) Find the 4 post pieces. there should be long pieces and short pieces. The longer pieces are the tops of the posts, while the shorter pieces are the bottom extensions of the 2 posts. Please put these together and fasten with screws.
- 4) Attach these legs to the sides of the tennis ball rack, matching up the pre-drilled screw holes.
- 5) If the two roof boards are already assembled, skip to # 7
- 6) If the two roof boards are unassembled, one is wider than the other. The flat side of this wider one screws into the edge of the narrower one. Fasten together by lining up the pre-drilled screw holes, and then screwing them together. Note that when joined together, they make a 90° angle.
- 7) Center this roof (left to right) on top of the Abacus, and fasten the roof to the top of the Abacus by lining up the pre-drilled holes and screwing everything together.

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- 8) Bring the Abacus to where you want it installed, and lay it on the ground so the post ends are oriented exactly where you want them standing.
- 9) Mark the locations of the post bottoms, move the Abacus away from the area, and use the post hole digger to make two holes about 8" in diameter and ~3' deep. You can decide the depth depending on the frost line. If the posts are too long for your climate, you can cut them off, but you should have at least 2' of post into the ground.
- 10) The ground line should be marked on the posts, but if it isn't, measure 1'6" (18") down from the bottom of the center part of the Abacus, and make a mark on each post.
- 11) Bring the Abacus to the holes, and drop it in. You can adjust its depth to meet the ground lines using small rocks or drainage pebbles.
- 12) You should also use your level on the front and sides of the Abacus. It has to be level/plumb in all directions.
- 13) If you brought strapping to hold the Abacus plumb/level while you are mixing and pouring the concrete, now would be the time to use it.
- 14) If you're not using strapping, you should have enough time between pouring the concrete in the holes around the posts and the concrete getting stiff to use your level to make sure everything is plumb/level.
- 15) Mix the concrete and carefully pour it into the holes around the posts. This is where a piece of rebar would be good to have so you can work in it next to the posts, moving it up and down to get rid of any air pockets. Try not to get the concrete on the posts above ground, as it is very difficult to remove from the wood once the concrete hardens.
- 16) Playground safety regs say to make sure the top of the concrete is below the finish ground level.
- 17) Let the concrete cure for 24 hours, then backfill the remaining space above the concrete to make it level with your finished grade.
- 18) All this wood is treated with kid-friendly preservative, but as is the case with all wood facing the elements, it needs to be cared for, so check it periodically for rough spots, splinters, etc, sand them out, but make sure to treat all the wood with kid-friendly wood preservative (we have it available if you can't find it) once or twice a year to keep the wood from deteriorating.

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