USA Volleyball
www.usavolleyball.org

SAND VOLLEYBALL COURT GUIDELINES

By John Kessel, USA Volleyball, Director Beach Volleyball and Grassroots Programs

Special thanks to Dennis Steers and C.C. Sandorfi of Volleyball magazine for many ideas.

This article is to give just general guidelines to provide you with an idea of what is needed for installation of a permanent sand volleyball court. Portable courts are very easily set up using an outdoor net . A portable court will need deadman anchors - about 2-feet long 2x4's - well buried (use a shovel) and another piece of wood to keep the poles from sinking into the sand.

The following information is not intended for use as architectural and/or engineering drawings or calculations. Your basic needs for a sand volleyball court are:

- 2,600 cubic feet of #57 gravel = 10.25/ton (110 ton)
- 5,200 cubic feet of sand (washed) 7.85/ton (205 ton)
- Two rolls of 250' perforated drainage pipe, four - 3 meter PVC sections and connectors.

Ideally, the court should be situated with the net running east-west so the morning and evening sun are not facing directly into the eyes of one team. The dirt dug out of the earth should be piled up around the court in a horseshoe fashion, leaving one of the four court sides open for proper drainage. This earth pile can be made into an incline that allows for elevated spectator viewing, even piling only one or two sides.

Drainage of the court under the sand must be considered, both by grading the earth properly and even installing a surface below the sand to promote drainage. Installing leaching pipe on the standard leach slant (14 degrees), is strongly recommended for a good, permanent court. Perforated drainage pipe can be laid in a serpentine fashion with one end capped and the other leading to the drainage ditch/point. The drainage point should lead away from the court at the lowest point, taking care to be aware of the natural surrounding slope so you do not trap water with your inclined viewing sides.

The court should be excavated to a 1-meter depth, plus create the aforementioned drainage ditch. Place a first layer of about 30 cm of #57 gravel (or similar) over the drainage pipe. Then place a porous cover such as plastic landscaping mesh or some other artificial, small-hole mesh over the gravel to prevent the sand from washing through. Soil with good drainage and no rocks can have the sand laid down without mesh or leaching pipes.

If you are serious about making a good court, you have to invest in good sand. Taking sand from beaches is illegal, so one group found a city street where the sand was blowing on and helped them clean up weekly until they accumulated enough. Others have found river sand of excellent court quality. A Midwest program trucked in sand from a sand dune left by a prehistoric glacier.

USA Volleyball
715 S. Circle Drive
Colorado Springs, CO 80910
88.US.VOLLEY
888.786.5539

SAND VOLLEYBALL COURT GUIDELINES
by John Kessel

If you must buy sand, get washed masonry sand or check the samples for beach-like feel. Do not use anything coarser or you will regret it, but also stay away from very fine grains, as they can compact into a type of mud when wet. What you want is the cleanest sand you can buy; check it out by throwing your choices and seeing how much is dirt and how much is sand. Some sand is very dirty and unsuitable for a court. (Dirty sand compacts after a couple of good rains and makes for a solid jumping platform.) We suggest silica sand, regionally available by contacting Best Sand at (800) 237-4986; FAX (216) 285-4109. The minimum recommended depth is 50 cm.

The sand boundary should be a minimum of 15 meters by 24 meters, so you will have a three-meter sand perimeter around the actual court. For professional competition, there needs to be four meters on the sides and five meters behind the endlines. The general area should be clear of any obstructions for 3-4 meters on all sides of the court. You should pad any item that would seem to be a hazard for hustling volleyball players who pursue the ball more often off the court than on, given the nature of the game.

The suggested boundary between the sand and surrounding surface should be soft, like rubber expansion joint material. Railroad ties and other wood containment boundaries increase the chance of injury should a diving player go all the way to the sand's edge.

Poles for standards can be either wood or pipe. The minimum metal pole thickness is 4" in diameter. Schedule 40 galvanized steel pipe with 8-inch diameter round treated wood poles are also recommended. USA Volleyball does not recommend square poles, due to the corners. In all cases, padding the poles is strongly recommended. Should the standard not have equal sides, the narrower side should be the net anchor side (facing the court).

Standards should be three meters above the court's sand surface and imbedded one meter into the ground using a concrete footing (unless the soil is solid, in which case packing in and washing in the soil and letting it dry should suffice). These should be placed one meter from the boundary of the court; any less and there will not be room for the full net (which is 10 meters wide) and adjusting cables.

Installing a water spigot near the court is encouraged, as the sand can become very hot, like the players. Both may need to be cooled off. Building a seat for the referee to sit in near the top of one standard is a nice touch, but outdoor play can be refereed just as well from below the net on the sand.

Boundary lines are made of 1/4" rope or 1-1.5 inch webbing and tied to the four corners with buried deadman anchors. No centerline is needed, but four meters extra beyond the 54 meters of total court lines will be needed for anchoring the corners. A small wood board buried at a 45-degree angle to the corner is fine and can be installed just for play if vandalism is a problem. The net should also be easily removed and stored in case of theft. Players would only need their own net to borrow the court, as approximate lines can also just be dug into the sand by dragging a foot.

Net heights are 2.43 m (7' 11 5/8") for men's and coed play and 2.24m (7' 4 1/4") for women's and reverse coed. A 10-meter net with a cable top is preferred, but strong ropes, especially the Kevlar types that are as strong as steel, can also work fine. A winch (padded) and hardware such as eyebolts are needed to mount the net on both the top and bottom. The bottom need only be anchored by rope to the standard.

(The 2000 USA Official Outdoor Rules are basically the same rules used in the 2000 Sydney Olympics at Bondi Beach. The rulebook also includes the indoor, coed and reverse coed rules, plus two-, three- and four- person differences. A casebook is also available, which is valuable for tournament directors and facility owners. Places to Play, a USA Volleyball book on building, lighting and running your own volleyball facility, either indoors or outdoors, has much more information than this handout. Books can be obtained by calling 1-800-275-8782 or by visiting the merchandise link on our web site - www.usavolleyball.org)

Step by Step:

1. Excavate the court area to your desired depth using a Bobcat or front-end loader. Experts all advise against using a bulldozer or backhoe (the bulldozer will not be able to pick up and replace the dirt and the backhoe will not dig a level surface). If you are in a low sea-level area (for example, shoreline areas in Florida), the court should be built slightly above ground. Use the dirt you excavate to create a slight slope up to the court.

2. Arrange your court perimeter (if desired) around the edges of the excavated site. This keeps dirt and grass from leaking into the court and vice-versa. Cover the exposed top edges with some sort of padding to minimize injury potential. One expert says he has had great luck buying used rubber escalator handrail material from escalator companies and seating it atop his 2 x 6-inch wooden boundaries.

3. Lay out your drainage pipe, perforated side down, with the open end at the low point of the court. You may wish to wrap each section of pipe with some type of filter to keep sand from filling up the pipe: burlap is one choice, although eventually it will rot. Experts suggest using flex wrap or "handicap wrap," which can be bought at plumbing supply houses.

4. Prepare your net standards by attaching hooks, hook-and-eye hardware and any winch-type hardware. Sink your poles at least 3 feet deep since they will need to be sunk 5 feet overall when you are finished. For longevity, if you are using wooden poles, you should pre-treat them with a weather-resistant stain. If you are not using guy wires as supports, set your poles in the ground at a slight angle outward from the court to allow for any bend caused by eventual net tension.

5. Cover the pipe and the remaining court area with a 1-foot thickness of small gravel. Various sizes seem to work, but the overall consensus is to use a small, pea-sized gravel known around the country as #56 gravel, #2 or #3 size gravel. Explain to your gravel supplier that it will be used for drainage and he can recommend the size for your needs.

6. Cover the gravel with a screen-type filter to keep gravel and dirt from working their way up to the sand level. Again, burlap will work, but it will eventually rot, especially if you get a lot of rain. The best material is ground stabilization filter fabric, which is a woven poly-blend that will not deteriorate. You can find a supplier by calling a landscaping or excavating company for a referral.

7. Deposit your sand - 1 to 2 feet deep - and rake so it is level.

8. Attach your net, put down your boundary lines and you are ready to play.

Tips from Volleyball Magazine experts:

***John Daloise**, president of Standard Building Systems and local promoter for the Bud Light Pro Beach 4s and WPVA, Dallas. Texas:*

- It is best to hire a contractor if you are unfamiliar with the excavating equipment. It will save you time and headaches in the long run.
- One foot of sand is usually enough; if you put down more, you will not be able to reach the lower levels with a rototiller or rake.
- Do not use sugar sand; it sticks too much and is too fine to be a good playing surface.

***Richard Anderson**, vice-chair of the local Olympic organizing committee for Clayton County, Jonesboro, Georgia:*

- Try using used escalator handrail material for padding on the court borders.
- Rake your court frequently with a 3-foot garden rake.
- Use a net with steel cable both on top and bottom for maximum tightness.

***J.B. Shares**, owner, Hot Shots beach volleyball clubs, Rochester, New York:*

- Pay special attention to the plans and follow them line by line. Do not cut corners or it will cost you in the long run.
- If you use steel poles for net standards, seat them in steel sleeves so you can easily remove the poles for maintenance or replacement.
- If your net has steel cables, use pulleys on each side to hold it tight.

***Robert "La Jolla Bob" Roemer**, owner, La Jolla Beach Volleyball Club, Toledo, Ohio*:

- Go with round poles whenever possible to reduce injury risks. Try used utility poles (you can get them for free in many communities by contacting the utility companies).
- Allow plenty of space for a sand perimeter around the court -- do not let grass or dirt serve as your perimeter.
- Watch out for freebies. Sometimes free sand can be more expensive than purchased sand because removing or sifting debris from the sand will be more expensive in the long run.

***Dale Hoffman**, president, California Beach Volleyball Association, Ventura, California:*

- Always put in proper drainage.
- Use the simplest net attachment system possible. In Brazil, they cut a notch in the top of the pole and drill a hole in the middle, string the net cable and rope over the top of the pole and knot it off at the hole.
- Choose your site carefully. Putting a court near a busy road or a swimming pool is not a great idea.