

Putting Green Tiers are Taller than You Think!

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[ZipTip: DISTANCE CONTROL / TOUCH: Putting Green Tiers are Taller than You Think!](#)

To get all the way up a putting green tier, visualize how far a ball perched on the top edge would roll on level green after it comes off the bottom of the tier, as this is the energy you'll have to add in the putt just to get over the hump itself, regardless of getting to the bottom of the tier or past the top of the tier.

Handling putting green tiers is a chapter in itself, but let's stick just with the force control necessary to get the ball all the way up a typical tier. The bottom line is that tiers usually present a stiff challenge to making sure you get the ball all the way to the top, and thereafter have the right force left over to get the ball the rest of the way to the hole. Here's a tip to convert a tier to just more footage of the lower zone's slope.

Some Theory.

Like any slope, a tier is an inclined plane. A tier is a band of especially sharp slope that connects two zones of the green at different elevations. Typically, the tier runs athwart the green to define a front and a back level of the green, the two levels usually but not always have similar slope, and a typical rise in elevation from the front bottom of the tier to the top of the tier is one to two feet.

To take a fairly typical example, in the hopes that this tip will thereby prove more applicable and translatable to other situations, consider a tier that cuts across an oval green 100 feet deep and 80 feet wide, with the line of the tier perpendicular to the long axis of the green. The bottom zone and top zone of the green both have 3 percent slopes (a rise of 3 feet for every 100 feet of run), and the tier rises vertically 1.5 feet over a horizontal run of 3 feet. Your ball is centered on the lower zone, and the hole is centered in the upper zone, so the putt is straight uphill all the way, including over the tier. How do you judge the force of the putt?

Galileo is famous for his experiment with gravity at the Tower of Pisa (which may be apocryphal), but his time was more often spent studying how gravity makes objects roll down an inclined plane. What he found, in a nutshell, is that 1) height is stored energy (like a prepackaged putt of a set force), and 2) if you roll a ball down one slope to "release" this stored energy, the ball at the bottom has taken on its full dose of the energy and hence will roll up an opposing slope of like inclination the same distance up as it just rolled down, for the same reason that a pendulum bob sweeps out equal arcs going down one side and up the other.

Actually, the ball will lose a little of this energy due to friction, air resistance, and other minor effects. Consequently, if you have opposing inclined slopes with a gentle transition at the bottom and release a ball at the top of one side, it will roll nearly to the top of the

other side and then fall back, and then roll back up the beginning slope even less, and then fall back, etc., until it settles at the bottom. This is how skateboarders work from side to side in the specially-built facilities.

So, to make use of this, to get a sense of the force needed to get up to the top of a slope, imagine how far a ball released from the top of this same slope will proceed along an unslowing, level surface after it reaches the bottom of the tier. You need to ADD this same distance to the total length of the putt to make sure the ball will successfully climb all the way up the tier. The energy coming down the slope is roughly the same energy needed to send the ball back up the slope.

[The Stimpmeter and Tiers.](#)

This approach to tiers can be combined with a Stimpmeter, which is also an inclined plane. The point of a Stimpmeter is to measure the speed condition of a green by giving the ball a uniformly repeatable speed at the bottom of the Stimpmeter. It does this by setting the ball 12 inches above the green and then releasing the ball down an inclined plane 30 inches long onto the green. This is a prepackaged putt, always with the same energy. The question then is how far will the condition of the green in terms of friction from grass, moisture, and other conditions, allow this prepackaged putt to run before stopping. A typical green speed for amateur play is about 7' 6".

Let's compare a Stimpmeter and our typical tier. The triangle of the inclined plane of the Stimpmeter has a hypotenuse of 30 inches that the ball runs down, a vertical base of 12 inches, and a horizontal base of 27.5 inches. This makes an acute angle at the tip of 23.6 degrees. The slope of the Stimpmeter is 43.6%, and if the horizontal base ran 100 feet, the vertical rise would be 43.6 feet!

Our tier makes the following triangle for the inclined plane: the horizontal base is 3' (36"), the vertical rise is 1.5' (18"), the hypotenuse (the tier surface) is 3.35' (40.2") long. The acute angle is 26.6 degrees, and the slope is 50%. As you can see, this tier is a little steeper and longer than a Stimpmeter, but not by too much.

Consequently, the 1.5' high tier is roughly the same as a Stimpmeter that is one and one-half times larger and higher than the standard Stimpmeter. If the tier was only 1" high, it would have roughly the same "prepackaged putt" as a regular Stimpmeter.

If our green has a 7'6" Stimpmeter reading, you know right off the bat that the 1.5' tier will take MORE than this to reach the top. If you treated this tier like an extra 7'6" of putt, your ball would NOT make it to the top! Speaking very roughly, a 1.5' tier of this sort of slope calls for adding a little over 10' of extra force to your putt.

[Make This Part of Your Game.](#)

Find a tiered green to practice putting up. Get a rough idea of the green Stimpmeter reading. Assess the elevation rise and get a handle on the horizontal run of the tier from bottom edge to top edge. If the two are equal, the tier has a slope of 100% and the angle is 45 degrees. This is a STEEP slope. Most tiers will be closer to 25-35 degrees in the 50% range. If the tier slope is comparable to the Stimpmeter slope, for every foot of rise in elevation of the tier itself, you can add about the same number of feet as the Stimpmeter reading of the green. Thus 1' of tier rise is about the same as an extra 7.5' of putt on a 7.5 Stimpmeter green. This is what you need to take care of the tier only. Then you still have to get the ball to the bottom of the tier and from the top to the hole. That's another story!

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