

## Mountain School Tech Tips: Can You Dig It: Efficient and Effective Excavation of Avalanche Victims

On January 7, 2008, three young snowboarders were involved in an avalanche in the backcountry outside of Fernie. Two of three were caught in the avalanche, but only one was buried – but what a burial – fully 2 metres deep. Live recoveries from this depth average only around 10%, but in this case, the victim was recovered alive, thanks to efficient and effective shoveling techniques that the three had learnt just one month before in an avalanche course.

There are two main shoveling techniques now being taught in avalanche courses. The first, known as *Strategic Shoveling*, first appeared in the avalanche literature in 2006. The second, the *V Shaped Conveyor Method* appeared more recently in 2008. Both techniques share a couple of commonalities. First, once the transceiver search is completed, probing for the victim should be **systematic**. The standard probe method is to probe in a spiral with each probe hole 25 cm from the one before, inserting the probe **perpendicular** to the slope.

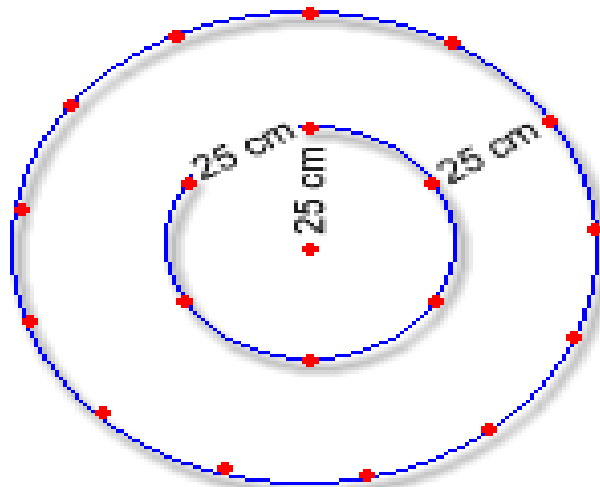


Figure 1: Spiral probing

Second, once you touch the victim with the probe, the probe is left in situ. Third, and what this is really all about, the actual digging, both methods recommend beginning excavation downslope of the victim one to two times the burial depth from the probe strike location. On flat slopes, begin digging two times the burial depth below the victim, on inclined slopes (around 20 degrees or more) begin digging downslope the depth of the burial. The width of the hole should be equal to the burial depth or about 1.5 to 2 metres wide. Rescuers are arranged in a V constellation with the narrow end of the V closest to the victim. Snow is removed in stages from the head of the V to the tails.

Fourthly, snow should be cut out in blocks for more efficient removal. Anyone who's built a snow wall around their tent when winter camping will be familiar with this method of digging and knows that for speed and efficiency walls go up way faster than simply shoveling out bucket loads of snow. Simply, the blocks are chopped out of the snow on all four sides and underneath, then lifted out by

shovel. The rescuer at the head of the V will be cutting blocks, those behind will be passing them down the line.

Fifth, both methods recommend frequently rotating shovelers. The person at the head of the V will be working hardest and should be spelled off frequently. It's a simple matter to move everyone to the right every two to four minutes.

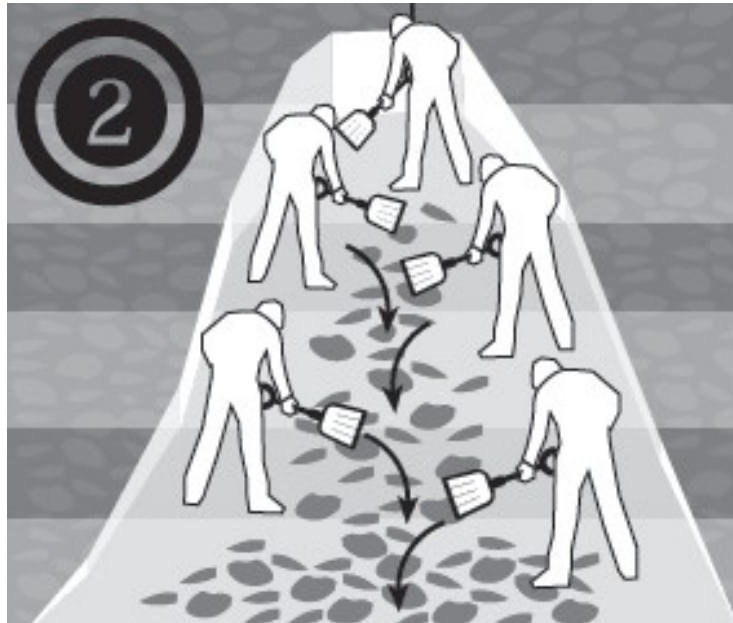


Figure 2: Arrangement of Diggers in V Shaped Conveyor Method

You can read more about both these methods of shoveling on the web at: <http://backcountryaccess.com/english/research/index.php> for *Strategic Shoveling*, and [www.ikar-cisa.org/ikar-cisa/documents/2008/ikar20080406000196.pdf](http://www.ikar-cisa.org/ikar-cisa/documents/2008/ikar20080406000196.pdf) for the *V Shaped Conveyor Method*.

Reading, however, is seldom as effective as actually doing, so the best thing would be to grab a friend and practice these new techniques. You're ski buddies will thank you.