3. Conical room (3 points) — *Maté Vigh.*

The interior of a modern museum is a perfect, right cone with half apex angle $\mathbf{60}^\circ$ (i.e. the walls are slanted by $\mathbf{60}^\circ$ with respect to the vertical). Launched from the center of the cone's base, the minimal speed needed for a projectile to reach the apex (i.e. the highest point of the walls) is v_0. What is the minimal speed required to reach the wall of the cone?