

Building a Quinzhee

Quinzhee is the Inuit word for Snow Shelter and is similar in shape to an igloo, but it requires much less time to build and is made of a pile of snow rather than many blocks of ice.

A quinzhee holds together thanks to differences in the temperature and shape of snow crystals in the different layers of undisturbed snow on the ground. As you shovel or bucket the snow into a pile, it is mixed and recrystallized.

After several hours of settling, this process cements the snow pile which can then be hollowed out to make a shelter. The colder the air temperature, the greater the temperature variation in the snow. This condition promotes more recrystallization and better cementing of snow particles.



Design Features: Snow can keep you warm!

- * the dome shape gives structural stability
- * thick walls provide maximum insulation
- * the vent hole allows excess moist air to escape, and good oxygen circulation
- * smooth interior walls prevent drip points
- * a raised platform takes advantage of warmer air higher up
- * the small, low entrance hole prevents loss of warm air
- * the entrance hole positioned perpendicular to prevailing wind is protected from direct drafts and excessive drifting

Stage 1: Piling the Snow

- Pile snow in a dome shape that is at least 2 meters high and 2.5 meters wide at the bottom.
- During the process of piling snow, break up chunks of snow and lightly pack to form the dome shape.
- If built on a slope, the door area should be on the down side and extra snow should be piled to form the entrance.
- To ensure consistent wall thickness after digging out, several 30-centimeter (12-inch) dry sticks are inserted into the walls of the dome, although the base of the walls should be thicker and gradually get thinner as you near the top of the shelter.

Stage 2: Digging Out the Quinzhee

- Begin by digging in where the group has decided the door is to go.
- To avoid caving in the door, use test sticks to check progress before digging upward.
- The digger inside the quinzhee continuously pushes snow out through the open door while other participants remove the snow.
- Once in far enough, the digger digs to one side and up, creating a space to the side of the doorway where the digger can kneel slightly.
- In a kneeling position, a shortened shovel can be used to easily scrape off snow chunks and pass them out through the door opening.
- Participants on the outside of the quinzhee use their shovels to remove the snow passed out by the digger.
- The digger needs to dig out the inside walls consistently to avoid caving in one area.
- The digger should dig until all the sticks are encountered, ensuring that the walls are thicker



Stage 3: Finishing the Inside

- Use the last of the snow removed from the walls and ceiling to create an even floor surface, making a sleeping area that is higher than the top of the doorway.
- A bed area that is higher than the doorway will prevent intrusion of cold air and will allow the participants to heat the interior of the quinzhee.
- Use the handle of the shovel to make two or three ventilation holes about halfway up the walls (the shovel handle can be dismantled to allow for plunging). Ventilation is important, especially if a candle is lit inside to help raise temperature and glaze the inside walls.
- Smooth the interior surfaces of the walls and roof to remove peaks of snow, which can cause water to drip as the interior heats up. A smooth roof and walls will allow water to drip down to the sides.
- Light a candle inside the quinzhee to heat and glaze the interior snow surface.

