

## Roof Architecture

The roofs of *gasshō*-style homes are notable for their gable structure supported by a framework of triangular trusses. The base of each truss is a roof beam (*usubari*) that straddles the width of the house. Above it, two logs are positioned so that their upper tips come together at slightly less than a 60-degree angle. The ends of the logs are lashed together with *neso*, a binding made from Japanese witch hazel branches. The lower ends of the logs, sharpened to rough points, are fitted into holes on the ends of the *usubari* roof beams. The result is strong, steep triangular supports that give *gasshō*-style homes their distinctive roof shape.

The trusses are lashed to the roof's base frame with straw rope and *neso* cords in several places. However, they are not joined to the main body of the house—the roof and walls are completely separate structures. The two gables on either end of the attic area are set with traditional shoji windows consisting of a frame covered by a heavy, translucent sheet of washi paper. When open, these windows provide good ventilation and let in plenty of light, which made them ideal for the attics' primary purpose: silkworm cultivation, the main industry of Shirakawa-gō for many decades. The large, steep shape of the roofs also allowed attics to be divided into two or three vertical levels, giving residents more room to raise silkworms and process the cocoons.

Visitors to the museum can ascend a two-layer attic in the Former Nakano Yoshimori House, which is open to the public. The different attic levels feature tools used in sericulture, such as the racks on which silkworms were raised and hand-cranked machines for unwinding cocoons.

The traditional gable frame of these roofs is weak to lateral forces. To compensate, large diagonal braces called *suji-kai* were added between the trusses inside the attic, and smaller diagonal braces were fastened to the trusses outside. This is an architectural feature unique to the *gasshō* style.