(with the reflector in the chamfered hollow part) on the surface of the core material (line-symmetrical positions from the corner part to the side surface), FIG. 6(1) illustrates the temperature distribution obtained when 30 minutes have elapsed since the start of heating, and FIG. 6(2) illustrates the temperature distribution obtained when 60 minutes have elapsed.

FIG. 7 is a view of an example of a conventional fire-resistant wood member subjected to fire heating, FIG. 7(1) is a horizontal sectional view of a wood pillar, and FIG. 7(2) is a vertical sectional view of a wood beam.

Description of Embodiments

[0022] Exemplary embodiments of a fire-resistant wood member according to the present invention are described below in greater detail with reference to the accompanying drawings using a wood pillar as an example. The embodiments are not intended to limit the present invention.

[0023] As illustrated in FIGS. 1(1) and 1(2), a fire-resistant wood member 100 according to the present embodiment is a wood pillar including a core material 10 and a burning stop layer 12. The core material 10 is made of a wood material that supports a load. The burning stop layer 12 is provided outside the core material 10. The shape of the cross section of the core material 10 is a square (polygon), and corner parts 14 (corners) of the square are chamfered off. In the following description, the chamfered portion is referred to as a chamfered part 16.

[0024] The chamfering dimension of the chamfered part 16 is a length L illustrated in FIG. 2, and the chamfering angle is 45°. In other words, the shape of the cross section of the chamfered part 16 according to the present embodiment is an isosceles right triangle having the equal length L of two sides. The hypotenuse corresponds to the

functions and effects as those described above.

[0033] Verification of the functions and effects of the present invention

The following describes verification of the functions and effects of the present invention.

An examination was carried out by a two-dimensional heat conduction analysis to grasp the chamfering range and the effects thereof quantitatively. As illustrated in FIG. 2, an analysis model was a wood pillar obtained by covering a 20-cm square core material 10 with a heat-insulating material (burning stop layer 12) made of a gypsum board having a total thickness of 30 mm. An analysis parameter was whether a thermal reflector is provided in the chamfering range and on the inner surface of the chamfered hollow part. The chamfering range is as follows: the chamfering angle was 45°, and the length L of the two equal sides of the chamfering range having a planar shape of an isosceles right triangle (isosceles right triangle surrounded by the two sides and the cut surface on the core material 10) was 0, 10, 20, 30, 40, and 50 mm, which serves as a parameter. A parameter for the chamfered hollow part was whether the thermal reflector (hereinafter, referred to as a reflector) was provided. Heating was performed such that the surface of the member was heated for one hour according to the standard heating temperature and time curve defined by ISO834. The latent heat of vaporization at 100°C was considered, when the water content of the gypsum board was 6 wt%, and the water content of the core material is 10 wt%. The reflectance of the reflector was 0.04 (corresponding to the reflectance of aluminum foil). Transfer of radiant heat and convective heat in the hollow part was considered. In the present analysis, it is