Types and characteristics of evacuation shelters for volcanic eruption in Japan

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After the sudden eruption of Mount Ontake in September 2014, 58 people were left dead and 5 people were missing. After this eruption, the Cabinet Office, Government of Japan published the “Guide to Enhancing Evacuation Shelters, etc. on Active Volcanoes" (hereafter it is abbreviated as the "shelter guide") in 2015. After this guide was published, the installation of evacuation shelters began around several volcanoes in Japan. Two types of evacuation shelters are installed in Japan. One is a special facility for a volcanic eruption. RC construction (cast-in-place concrete and installation of precast concrete) is common for special facilities. Steel constructions are classified into temporary and permanent types. Both are special facilities for evacuation and remain unused on regular days. The other is a dual-use facility where the shelter function is added to tourist facilities such as rest houses and visitor centers. When an all or part of a tourist facility is turned into a shelter by RC construction, tourists and passengers can evacuate in the event of an eruption. The "shelter guide" demonstrated a method to use aramid fiber to reinforce the roofs or ceilings of wooden buildings. Reinforcement using aramid fiber is currently being undertaken in mountain huts around Japanese volcano.

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