

NATURAL COOL-AIR FRUIT-STORAGE.

SOME AMERICAN SYSTEMS.

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NATURAL cool-air storage (as distinguished from mechanical refrigeration) is very largely utilized in many parts of the United States of America, and although the systems vary somewhat the difference is not very great in the more recently constructed houses. The object sought in each case is, of course, to reduce the temperature of the house by admitting air when the atmosphere outside the house is colder than the air within, and to maintain for a maximum length of time the low temperature thereby secured.

To attain these results satisfactorily an ample free air-circulation must be available, and the walls, ceiling, and roof of the building must be specially constructed. In southern California the earlier citrus storage was built on the partial basement plan—that is, the floor of the house was some 4 ft. or 5 ft. below the ground-level. The building itself was practically a house within a house, some 6 in. to 12 in. space being left between the two walls, and similarly with the roof. A number of fairly wide doors set opposite each other in each set of walls provided the bottom ventilation, while the top ventilation was through an opening along the ridge of the roof. Such houses were and are still giving great satisfaction in the curing of lemons and the storage of citrus fruits.

The more recently constructed houses, however, are on a somewhat different plan. Underground ventilation by means of concrete tunnels is provided. In this case top ventilation is provided, but it is not so important, as the object of the tunnels is to provide a means whereby the whole of the air in a room may be drawn off by fans and replaced with fresh cold air in a comparatively short time.

The general plan adopted, however, for the storage of deciduous fruits is either the hollow or the insulated wall, with or without a basement. In the Yakima and Wenatchee districts the hollow wall with basement is the common method, while in Spokane the basement has been dispensed with, and the walls are insulated. The objection made to the basement lies in the added difficulties of ventilation, while it is claimed that any advantage gained by having the building partially underground is covered by insulating the walls.

The following description covers a two-story building with insulated walls and without basement:—

Foundation: Outer foundation solid concrete, 2 ft. to 2 ft. 5 in. high. Inner foundation concrete blocks 6 in. high and 1 ft. square, set in every 10 ft. with wooden blocks sufficient to bring the inner foundations on a level with the outer.

Floor: 10 in. by 2 in. floor-joists are set on the foundation, and the floor, which is 3 ft. to 3 ft. 6 in. above the ground, is made of 4 in. by 2 in. timber with a $\frac{1}{2}$ in. space between each board. The joists are set in across the building. It is held that the floor would be better if it were made the height of the bottom of a fruit-wagon.