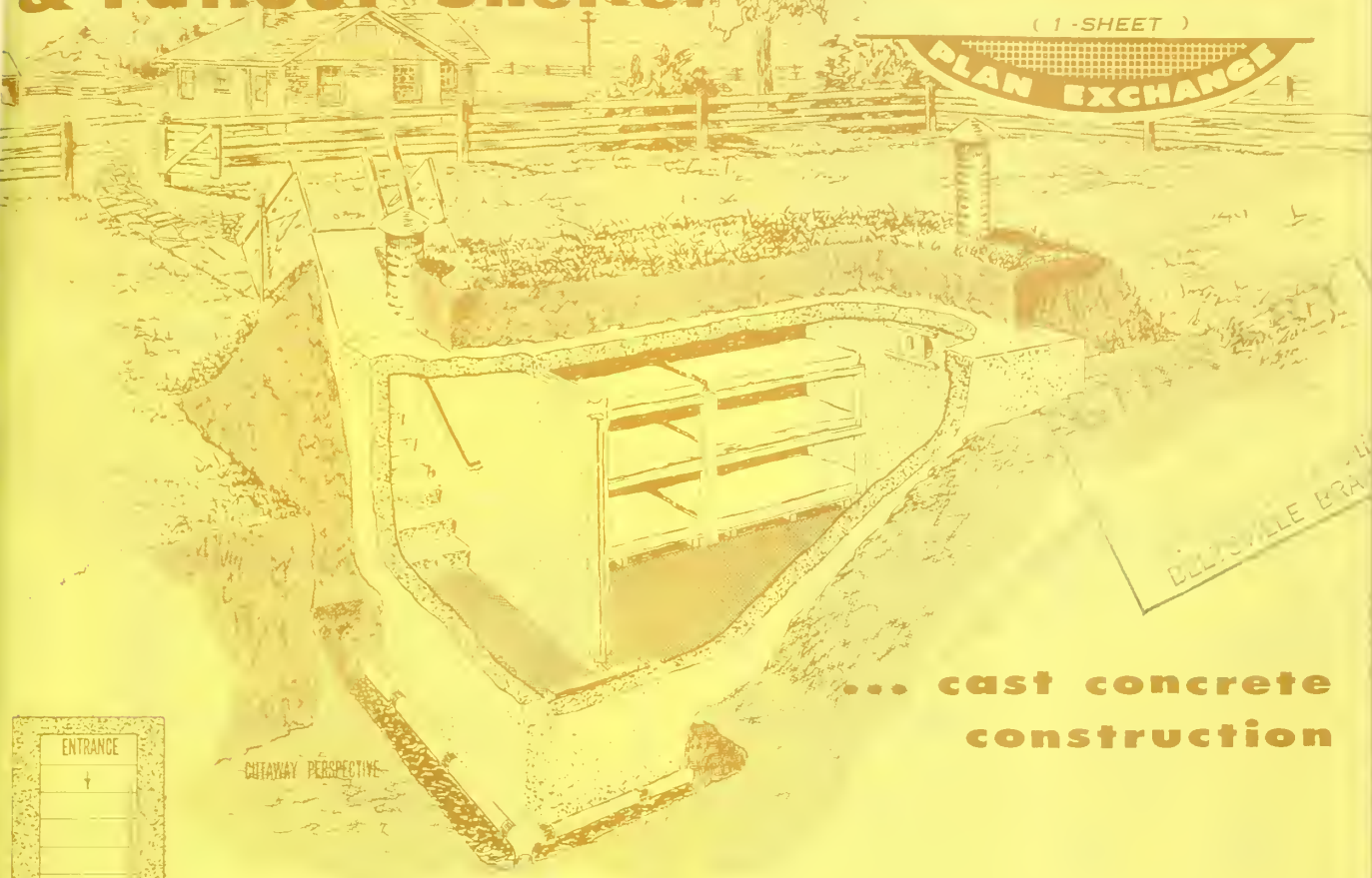


# Storage, Storm & Fallout Shelter

COOPERATIVE FARM BUILDING  
 Plan No. 5948  
 (1-SHEET)  
 PLAN EXCHANGE



... cast concrete construction

This dual-purpose structure is intended for normal use as a storage cellar for fruit and vegetables and for emergency use as a storm and fallout shelter for six persons. For this reason, the space per person is well in excess of the accepted minimum standard ( $2\frac{1}{3}$  times as much) since it must be assumed that a considerable portion of the space will be occupied by produce at time of emergency. The fruits and vegetables in the storage will supplement the emergency food supply.

Ventilation is provided by gravity airflow. Therefore, it is important that the air exhaust duct be extended high enough above the ground to produce a draft. This system is efficient when the air exhaust is at least 14 inches in diameter and projects at least 2 feet higher than the air intake that is located a few inches above the ground. Intake and exhaust openings should be designed to prevent infiltration of fallout particles. If more than six persons may be required to take shelter during emergency, a mechanical blower that can be operated manually should be installed. In northern latitudes, provide 10 cubic feet of air per minute per person; in southern latitudes, 15.

Hooks, bars, or other substantial means of holding doors closed from the inside should be provided.

Washington, D.C.

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**THIS STORAGE CELLAR HAS SERVED FARMERS FOR MANY YEARS**

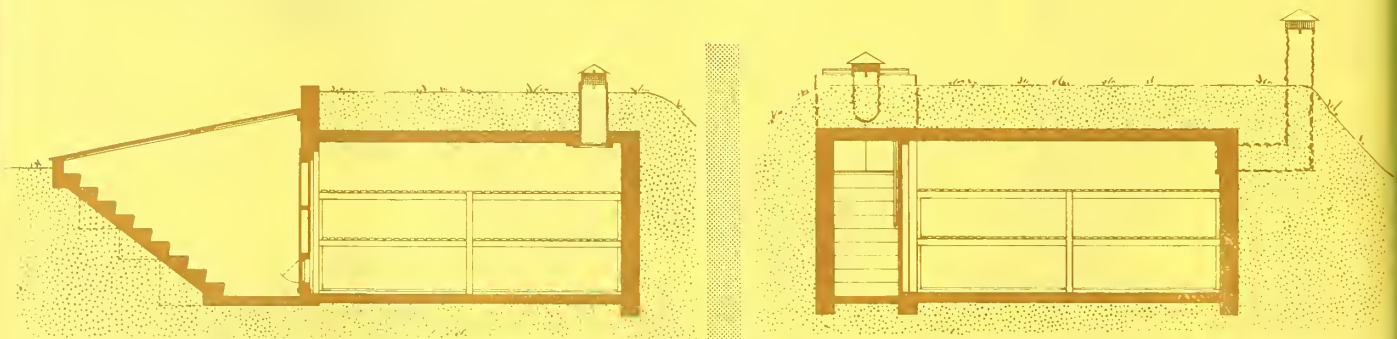
Original drawings for a cellar of this type, made between 1917 and 1920, were among the first buildings designed by the relatively new branch of physical science, agricultural engineering. Revisions of the plan, made in 1936 and 1946, reflected slight changes in construction techniques. In previous designs, the entrance sloped straight into the cellar. In this design, the entrance is changed. Besides the need for storage of fruits and vegetables, besides the need for shelter from tornadoes, we now need protection from the possibility of radioactive fallout. The solution is simple: Baffle the entrance by bringing it in sideways and baffle the vent by elbowing it through the back wall.

**SITE:**

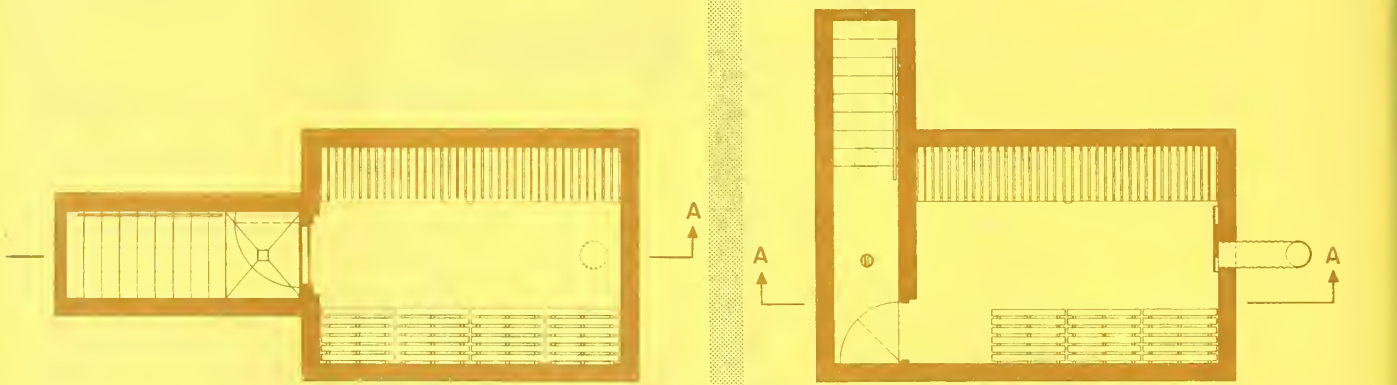
- Select a convenient location.
- Choose a site with good drainage or one that can be drained.
- Use natural hillsides to reduce construction costs.
- In an area with a high water table, construct above ground and cover with at least 2 feet of earth.

**USE:**

- Fruits or vegetables in storage create high humidity.
- Protect fallout supplies by packaging them in moistureproof containers.
- Arrange for shelter space in addition to storage space.



**LONGITUDINAL SECTIONS A-A**



**PLANS**

**OLD DESIGN**  
Pf= 470

**NEW DESIGN**  
Pf=2600

**PROTECTION FACTOR:**

The ratio of radioactivity on the outside divided by radioactivity on the inside is called protection factor ( $P_f$ ). Rearranging the entrance and vent from the old to the new design increases the  $P_f$  from 470 to 2,600.

The  $P_f$  (470) of the original plan (No. 5157) is adequate. However, in new construction the cost of greatly improving the protection factor is slight.

Large-scale working drawings may be obtained through your county agent or from the extension agricultural engineer at most State agricultural colleges. There is usually a small charge.

**ORDER PLAN NO. 5948, STORAGE, STORM, AND FALLOUT SHELTER**

If the large-scale drawings are not available in your State, write to the U.S. Department of Agriculture, Agricultural Engineering Research Division, Plant Industry Station, Beltsville, Md. The U.S. Department of Agriculture does not distribute drawings but will direct you to a State that does distribute them.