

Farm Building Construction

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THE preceding five articles in this series described foundations, framing, roofing materials, sheathing, flooring, joinery, and internal finish. This article, which concludes the series, deals with new methods of building which though unconventional can help to reduce costs.

TIMBER has come to be accepted as the most versatile material for small buildings, probably because of the past abundance of suitable types. Though its versatility is not disputed, its suitability as a building material cannot be classed with that of other materials.

Timber by its nature is subject to decay and the ravages of insects and fungus and has the disadvantage of non-permanence even with maintenance. Alternative materials such as metal and cement have the advantage of permanence without maintenance if they are correctly used. For example, galvanised corrugated iron has a limited life even with maintenance by painting. The same material, however, factory treated with a bitumen asbestos compound will give what can be considered permanent service.

Even materials which can be considered permanent are subject to deterioration, but if they are correctly treated and applied, deterioration can be prevented, thereby making them as permanent as is required.

Buildings, which represent a capital outlay and an asset, should be constructed (unless designed as temporary) with materials which will give the greatest permanence with least maintenance, as once they are erected these materials will give years of useful, cost-free service.

The alternatives to timber, whether brick, stone, concrete, or metal, all

give a satisfactory degree of permanence.

Construction Methods

At present what is known as frame building construction is the universal method of constructing buildings with materials other than brick, stone, concrete, or stabilised earth. With time this method has developed a definite pattern and is the method that has been described in this series.

It can be described as providing a framework to support a weatherproof sheathing consisting of roof, walls, doors, and windows, the framework plus the sheathing constituting the building.

Frames for buildings of this type in the past have been constructed almost universally from timber, with the use in larger structures of perhaps a small quantity of steel for ties.

With the enormous demands made on timber suitable for framing supplies of the accepted types are dwindling rapidly and attention has been given to the use of other materials.

As the technique of usage of any material must be decided by the physical characteristics of the material, the use of materials such as steel, pre-stressed concrete, foamed or light-weight concrete, etc., in building construction must involve new techniques and different construction methods.

As the sheathing materials used in timber frame construction may be termed "unit" materials, in which the fabric is built up from sheets or tiles or other small units easily handled, so other materials which in themselves may be applied as a complete fabric can also take the form of unit materials. An example of this is concrete, which can be used with reinforcing for the building of a continuous structure or in the form of concrete blocks, which are a unit material.

As some unit materials like bricks or blocks cannot be effectively bonded together to produce in themselves a rigid structure, some method of reinforcing must be applied to produce the required rigidity.

Unit materials are particularly suited to frame construction because they need not be depended on for structural rigidity, rigidity being supplied by the frame to which they are attached.

As the uses to which materials alternative to timber can be put in building construction depend on their physical characteristics, the sphere of utility or method of utilisation is varied by the range of those characteristics. Some alternative unit materials may not have the crushing strength or the rigidity to make them suitable structural units, and therefore load-bearing characteristics and rigidity must be supplied by other means, which may be a frame, reinforcing, or a combination of both.

An example of this is pumice or breeze concrete blocks, which have not the necessary crushing strength to make them suitable for support walls but which can still be used as a fabric for such walls by the provision of reinforced-concrete piers and tie bands to provide the required load-carrying capacity and rigidity.

Between the two limits of true frame and continuous construction



Buildings should be constructed with materials which will give greatest permanence with least maintenance. This implement and storage shed was built of foamed concrete units by 4 men in 8 days on a site 230 miles from the factory supplying the units. The cost was 10s. per square foot.