

Cob or Earth Building.

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In Central Otago, where the average annual rainfall is only between 12in. and 18in., but with extremes of heat and cold, and where building and other materials are scarce and expensive, cob or earth has been used for buildings of all descriptions since the start of settlement, while some people are still using it for residence solely on account of its low heat-conducting qualities. This system of building is inclined to be revived at present, owing to the high cost and difficulty of obtaining timber, and there is a considerable demand from various directions for information on the subject.

TYPES OF COB BUILDING.

There are three distinct types, which may be briefly described as follows:—

Dry cob: Choose a light subsoil, free from much gravel or sand, but yet not clay. Discard the surface humus, and dig out the subsoil as required for the walls. Turn dry subsoil on a mixing-board, sprinkling with water in a similar manner to concrete, and when slightly damped throughout place between wall-moulds in 2in. or 3in. layers and ram well. Two boards bolted together form moulds for walls, and are moved as soon as filled. Holes left in the walls by the bolts are filled with mud. No straw is used in this work, and almost any soil appears to suit.

Wet cob: Choose material in the same way as for dry cob. Dig up a circular strip 2ft. or 3ft. wide and about 20ft. in radius. Puddle the dug material by applying water and driving a horse round in it. When partly puddled, add about 2 per cent. of straw or tussock and trample this in with the horse. When the material is about the consistency of workable putty dig it out and place it in walls in the same manner as for dry cob, and ram similarly. Wet cob is inclined to develop cracks in drying out, but these, when once filled with mud mortar, give no more trouble.

Sun-dried brick: Prepare puddle exactly as for wet cob, but instead of building in mass mould the material into bricks 15in. by 7½in. by 6in. alongside of puddling-ground. The mould can be removed from the bricks an hour after making, and the bricks can be used in a week's time, being built to any recognised bond and jointed with mud mortar, the latter preferably to be slightly more sandy than material used for bricks.

General: In all cases foundations should be made of stone in mud or cement mortar, or of concrete brought 9in. above ground-level, and, after being topped with a 3in. layer of wet or dry cob, finished with a damp-course ready to start building walls.

The cheapest damp-course and one quite efficient can be made with a ¼in. layer of tar and sand. Walls are usually built 15in. thick and solid. Window and door frames are built into the walls as the work proceeds. A good overhang should be given to eaves all round to keep weather off walls as much as possible.

It is more usual to leave walls without any outside dressing in any of the three classes described, but they can be given a better appearance and will probably last longer by applying one coat of white-wash, consisting of one part cement to three parts lime, mixed with water, or two coats of raw linseed oil, coloured if desired. Plaster on the outside is inclined to lift with frost. The inside can be left undressed or finished the same as outside, or it will take cement plaster the same as burnt brick.

OTHER PARTICULARS.

Lasting-qualities: Undressed wet and dry-cob walls in Central Otago, over thirty years old, appear the same as new where care has been taken not to allow spouting to get out of order. Sun-dried brick is of more recent construction, but shows no appreciable deterioration after twenty years. There does not appear to be much difference in the lasting-qualities of the three methods.

Comparative costs: Dry cob is said to be only about two-thirds of the cost of wet cob or sun-dried brick, while the two latter are almost equal in cost. A wet cob or sun-dried brick building would probably cost about two-thirds of the cost of a similar building in timber, because the floors and roofs and fittings are the same in any case.

Preference: Experienced builders favour sun-dried bricks as being the quickest to erect (after the bricks are made), better in appearance, and stronger on account of non-liability to crack if properly bonded. At times when damp air and frosts will cause moisture to sweat through a stone wall, so that it can be wiped off inside with the hand, sun-dried brick walls are found to be quite dry.

Correspondence.

STUDENTS' COMPETITIONS.

TO THE EDITOR.

Sir,—I notice in this month's *Progress* that Mr. Page advocates the Students' Competitions being worked out at students' classes. This, of course, would be a good thing in every way, both for the designs and the students themselves, but it would mean that the design would not be so much the student's own work, as he would receive the suggestions and help of the instructor. The matter is worth discussion.—Yours sincerely,

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