DAMP COURSES AND THEIR TREATMENT.---Methods Adopted in the Construction of Brick and Stone Structures to Prevent Moisture from Permeating Walls. . . .

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THE question of damp courses in building operations is of great importance, especially in locations where the climate is wet and variable. When damp arising from the soil is absorbed into the brick or stone wall of a building it ascends gradually until it penetrates the inner surface, affecting the timber and plaster work, and consequently causing a moist atmosphere in the interior. It may also arise from imperfect joints at window lintels and sills, from unfilled and unpointed joints on the face of the wall, from moisture forced into the walls during heavy rain storms, and from several other causes. All building materials, with very few exceptions, are porous and capable of absorbing and transmitting moisture in large quantity. The two main purposes for which damp preventing devices are adopted in connection with buildings are to prevent the moisture from getting into the walls and, if any be within the walls, not to hinder its extrusion. The former is accomplished by an absolutely waterproof covering, such as asphalt or tar, or the complete isolation of the wall from any sources of dampness (exception being made here to the moisture which is put into the walls in buildings, and which should be allowed a proper opportunity to dry out). The latter will eventually be accomplished by the perfect ventilation of the walls on all sides.

There are several methods for preventing moisture from entering the cellar walls, which may be divided into, first, applications to the outside of the walls, and, second, constructive devices. The efficiency of the former depends greatly on the care and thoroughness with which they are applied. Of this class we have rock asphalt, tar and cements. The first and second are applied to the wall with a large brush, and should be boiling hot. The coating must be not less than three-eighths of an inch thick, covering every joint, and be carried down to the bottom of the footings. In order to obtain perfect protection the wall should have been built as carefully as possible, the joints well pointed, the whole thoroughly dried, and the asphalt or tar applied in two or more coats. These coatings should not stop with the face of the wall, but be carried entirely over the top. Some builders recommend that the asphalt be mixed with linseed oil. Regarding cement as a preventive against absorption of water there are differences of opinion. That it is an excellent protective covering, when thoroughly applied, goes without question. It is, however, often fractured by the settlement of the walls, and, being somewhat porous, suffers from the action of the frost. In either case it has no further value as a protective. In order to lay it properly, all the beds and joints of the walls should be raked out at least one-half inch deep. The coating should not be less than one-half inch thick, and should, as far as possible, be applied all at one time. If it is necessary to make a joint it should be vertical and not horizontal. The last precaution is that the earth must not be filled in against it until the cement has thoroughly set. A similar protective covering is made of a concrete or one-half lime mortar and one-half good cement (Portland preferred).

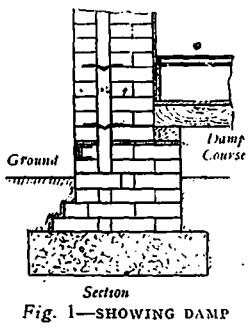

Fig. 1—SHOWING DAMP COURSE IN WALL.

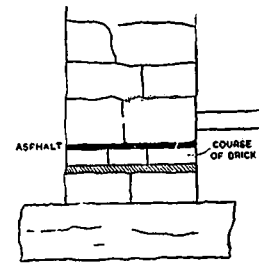

Fig. 2—SHOWING ASPHALT AND COURSE OF BRICK.

Of the constructive devices adopted to guard against dampness we have first those that are in the wall itself, (Fig. 5.) and which comprise the horizontal damp courses, hollow brick lining and facing, and hollow wall (Figures 5 and 6). There are several kinds of horizontal damp courses, which are placed at the bottom of the wall, either on top of the footings or a short distance above them. That which is considered the most effective damp course is one of asphalt ortar, applied in coats in the same manner as described for the facing of the walls. A great degree of efficiency is obtained by laying the course of bricks immediately above the damp course, while the last coat is still hot and soft. When this damp course is set in a stone wall it would be better to lay a course of bricks (Fig. 2), and, on this, place the asphalt course, starting the stone course above the latter. A layer of slate (Fig. 3) set in cement has often been adopted as a damp course. The disadvantage, however, of using this method is because of it being very liable to fracture under unseen pressure.

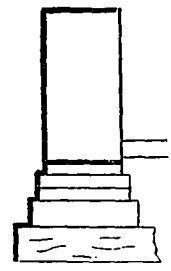

Fig. 3—SHOWING SLATE AND CEMENT COURSES.

Sheet lead also is an excellent protective from damp and has been applied for that purpose for about two centuries. It is precluded, however, from being used for ordinary work because of its cost.

Perforated terra-cotta bricks (Fig. 4) may be also used as an excellent damp course. These are made the same size as the ordinary brick, and can be readily bedded into the wall. A course may be set immediately above the footings, and another at, or near, the top of the wall. The bricks should be laid so that the openings run through the wall, and so allow of ventilation and evaporation of any moisture that might rise in the hollow bricks themselves. The perforated bricks are also used to form a vertical damp course. They may be placed either on the inside or outside of the wall and may be laid as stretchers, as there is not the same liability to collect and retain moisture as there is in the horizontal course. Headers

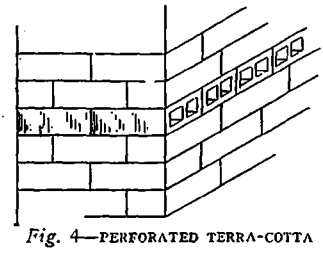

Fig. 4—PERFORATED TERRA-COTTA BRICK METHODS.