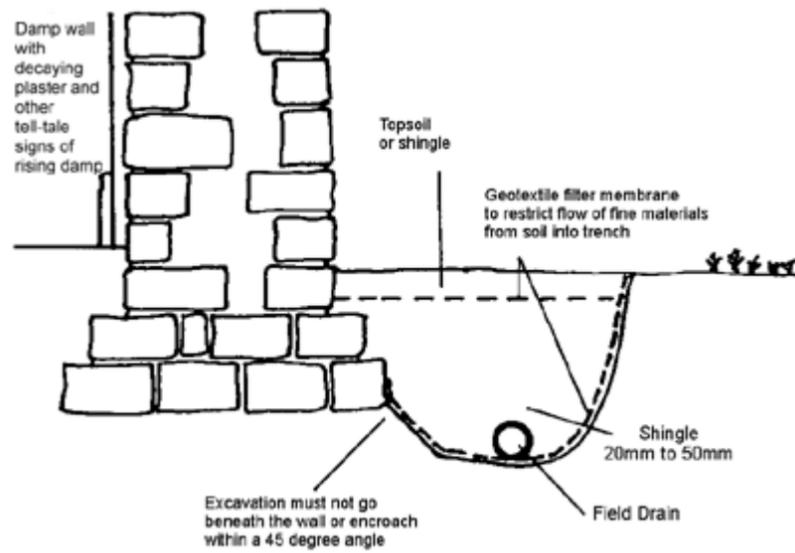


## French Drains



### DEFINITION

A french drain is a trench that has a land drain installed at the bottom of the trench and has been backfilled with shingle or similar coarse stone. Modern techniques include lining the sides of the drain with a geotextile filter membrane that will stop the transmission of fines within surrounding into the french drain, and also possibly wrapping the land drain in a similar membrane. The purpose of such a drain is to change the pattern of drainage in a certain area. These are used in fields and other open spaces but this article relates to their use close to buildings.

Similar to french drains are 'dry areas'. These might be open trenches around a building with or without drainage or might be similar in construction to french drains but without having the land drain installed at the bottom. Unless built with a drainage system, they will not disperse water but will allow moisture to evaporate from the base of a wall. Dry areas might serve to collect water, particularly if the ground is not free draining, and may well cause more problems than they solve.

### WHY MIGHT A FRENCH DRAIN BE NEEDED?

The usual reason for installing a french drain is to ease the situation where damp problems exist within the body of an external wall. This usually shows itself as rising damp which can result in damp and decaying plaster within a building and damp and decaying stonework or brickwork externally. Panelling may become damp and rotted. Quite clearly, damp problems should not be allowed to persist. Other means of controlling the damp problem, such as the insertion of a damp\_proof course (preferably not involving chemicals), might be considered in preference to the installation of a french drain but often these have their own problems. These problems have been written about elsewhere.

It should always be ascertained that both the roof drainage and existing below ground drainage is working properly before any other remedial measures are attempted. Advice in assessing the cause of the problem and the suitability of any proposed solutions should always be sought from an experienced professional.

### DANGERS

There are inherent dangers in the use of french drains and dry areas, in that they may change the flow of water, not always to the best advantage. The ground may dry out excessively and although french drains may perhaps relieve any rising damp problems they may create problems of settlement of the building.

Most importantly, it must be ensured that the excavation for the french drain or dry area does not undermine the foundations of the wall that it is intended to help. As should be well known,

foundations of historic buildings do not always go very deep. Often, particularly with mediaeval buildings, the walls are founded only about 150 mm below the existing ground level. In this case the french drain/dry area will have to be constructed at some distance (say 1 m) from the wall so as to avoid undermining the foundation. Its effect on any rising damp may, therefore, be limited.

Excavation for the french drain will take away the horizontal resistance to outward wall movement. This may be crucial if the wall is fragile and has a tendency to bulge sideways.

The backfilling to the trench will have to be well compacted so as to avoid settling of the fill with consequent movement of the ground and structures adjacent to it. It is best to compact each 150 mm of fill before the next layer is put in.

### PRECAUTIONS

It is always wise to carry out some trial excavations before deciding on the installation of french drains/dry areas so as to ascertain the bottom of the foundations, the existence of anything buried such as graves or archaeology and the type of ground. It may well be necessary to seek listed building or scheduled monument consent before carrying out excavations of any sort. If the ground is already of a free draining type, little may be gained by inserting french drains/dry areas; however, if the ground is of a clay type then there may be some benefits to be expected.

The top of the french drain can be backfilled with topsoil (over a further layer of geotextile membrane), left with the coarse material exposed or covered with an open channel that will collect and disperse surface water. Such channels are prone to leaking and thereby concentrating the water in one spot if they are not properly and constantly maintained.

### THE INSTALLATION

As with all drains, french drains need to be maintained regularly. Therefore the land drains must be laid to good falls and ensure that any water that they collect is taken well away from the building and fed to a main drainage system, to a specially constructed soakaway or to a nearby watercourse. Again, as with all drains, there must be a generous supply of rodding eyes to facilitate access should the system become blocked and there should be access points at all changes of direction.

### ALTERNATIVES

As noted above, if a french drain is kept away from the building by some small distance (1 m should be sufficient), many of the advantages of the french drain may be gained with the loss of some of its drawbacks. The alternative of digging a trench and leaving it unfilled (a dry area) may result in it filling with water and debris and the situation will be exacerbated rather than relieved. Such a system should be drained.

The use of drainage composites might also be considered. These are prefabricated sheet materials and use a three\_dimensional core made from modern, long lasting, plastics with a geotextile filter membrane fixed to the surface. These are fixed to the wall surface below ground level. Any water moving towards the building passes through the filter membrane, runs down the three\_dimensional core into a drain and is piped away from the building. Again, specialist advice on the use and installation of these materials should be sought

### CONCLUSION

It may be considered that no drainage system is better than a badly neglected one, since blocked drains can often concentrate water into one localised spot rather than allowing the water to distribute itself more evenly around the building. It is usually concentrations of water that causes problems. However if there are no other options to the solution of a damp problem and it is felt that any new drainage installation can be properly maintained, french drains may well be at least a partial solution.

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