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TOWARD A WARMER RONDAVEL

Energy Conservation Techniques for
the Traditional House of Lesotho



**RET
LESOTHO**

RENEWABLE ENERGY TECHNOLOGY
RURAL DEVELOPMENT

Preface

This pamphlet was prepared by the Renewable Energy Technology Project of the Appropriate Technology Section of the Ministry of Co-ops and Rural Development. It was written and illustrated by David Norris, Associates in Rural Development, 362 Main Street, Burlington, Vermont 05401, USA.

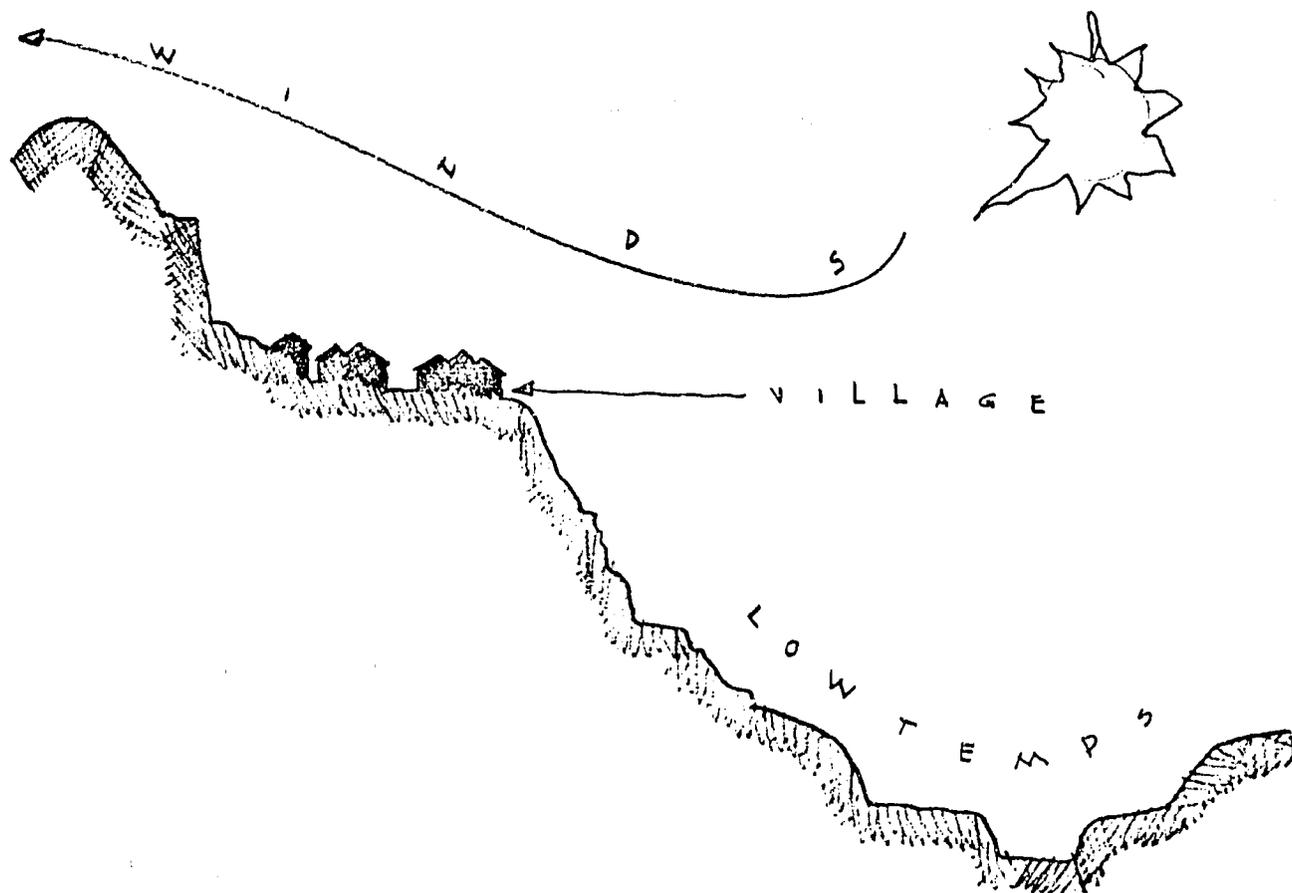
Introduction

Toward a Warmer Rondavel suggests a number of techniques which will make the traditional house of Lesotho a warmer place to live. Most of these techniques are not novel. Indeed, most are traditional and in danger of dying out, even though they make sense thermally.

All of the techniques are strictly within the limits of existing building materials and methods. For this reason, they do not include commercial roof or wall insulation, which may be too difficult or costly to come by. For the same reason, no attempt is made to suggest a better way to heat the rondavel other than by additional north glass. Internal, integrated room heaters or cook stoves may emerge as possibilities, but we must await the results of the RET project's stove program to be sure of the best stove and how to integrate it into the crowded and culturally complex rondavel.

The format of this booklet is as much visual as verbal because it must communicate directly to the user--without words. It is also open-ended because, as the title suggests, other techniques should be included as they are discovered or developed.

Perhaps energy is an issue to those who live in rondavels. Perhaps thermal comfort is. If so, this booklet may help to preserve a very beautiful little building for a while longer.



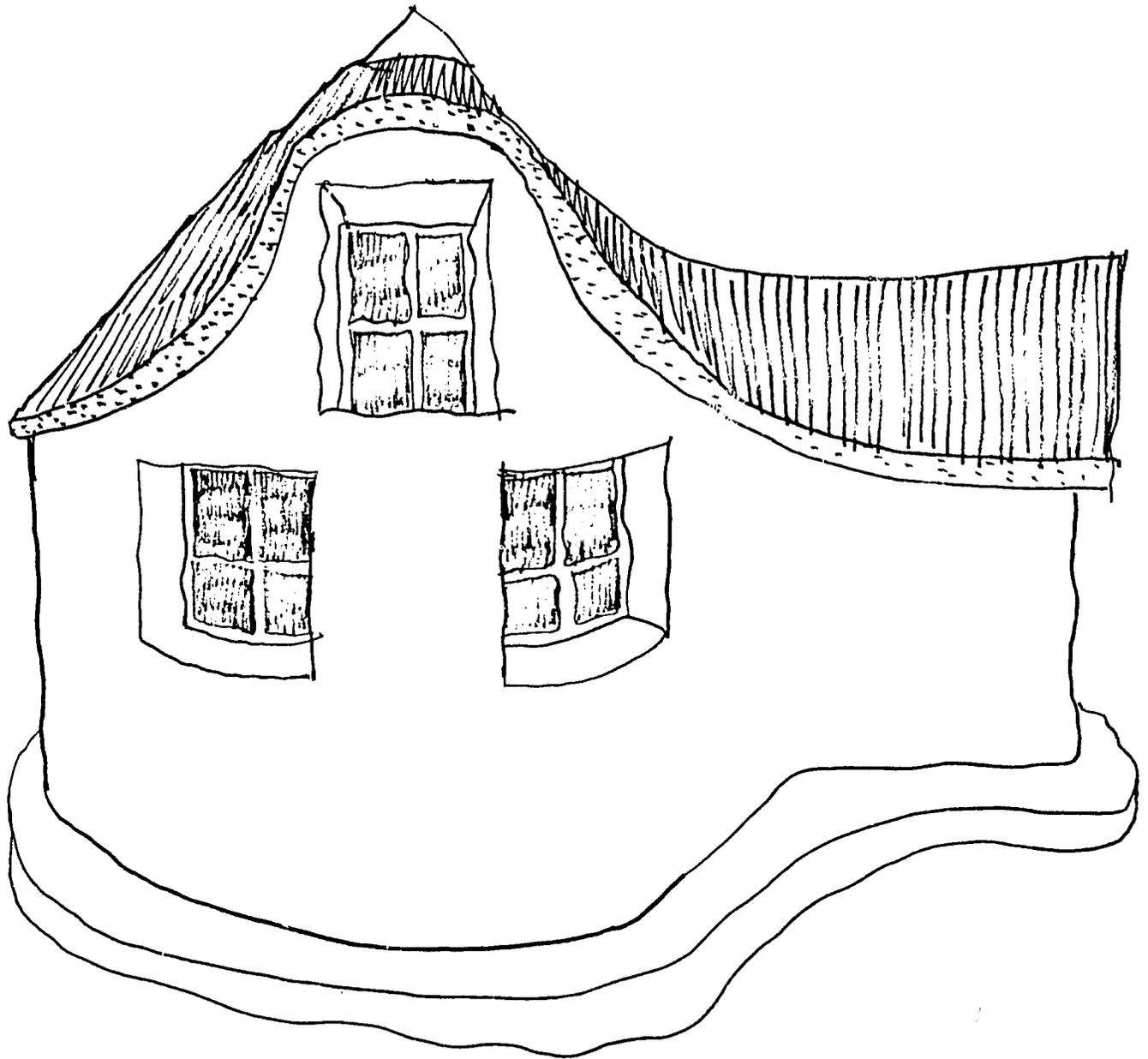
The Right Place

When you stop for lunch in winter, you select a spot which is out of the wind and cold, and in the sun. The same for your house. The right place for it is usually on the middle part of a hillside, where it will avoid the colder temperatures of the valley as well as the high winds of the mountaintop. This is an old and wise tradition in Lesotho, which puts houses in the warmest, that is to say the right, place.



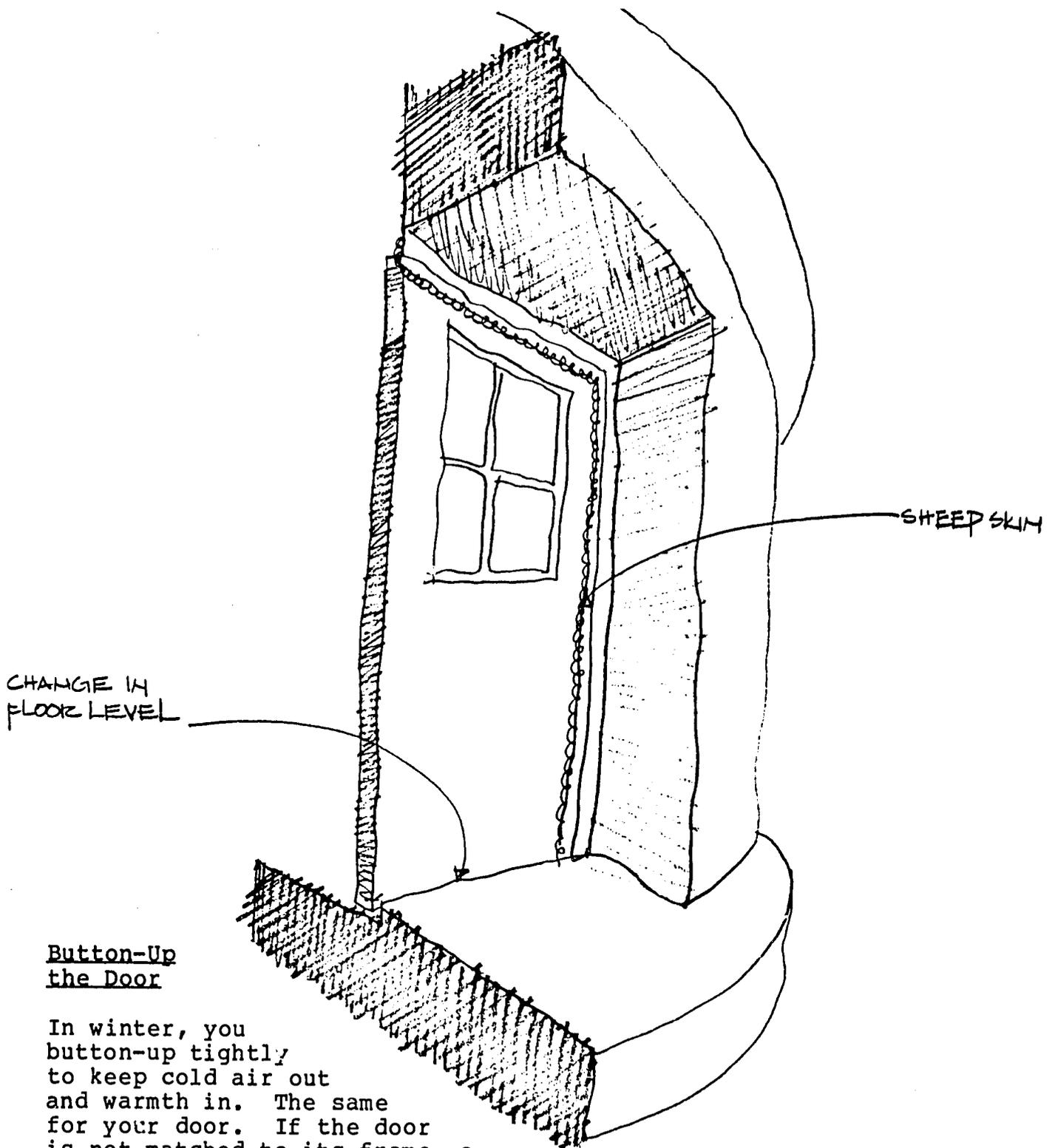
Add a Porch

When the cold winds blow, you seek shelter behind a large rock. You must protect your house in a similar way. First, face it away from the winter wind, if possible. Then, add an enclosed porch. It will offer a place to sit or cook outside with a roof. Its walls will also shelter the door from cold winter winds, which will help keep warm air in and cold air out.



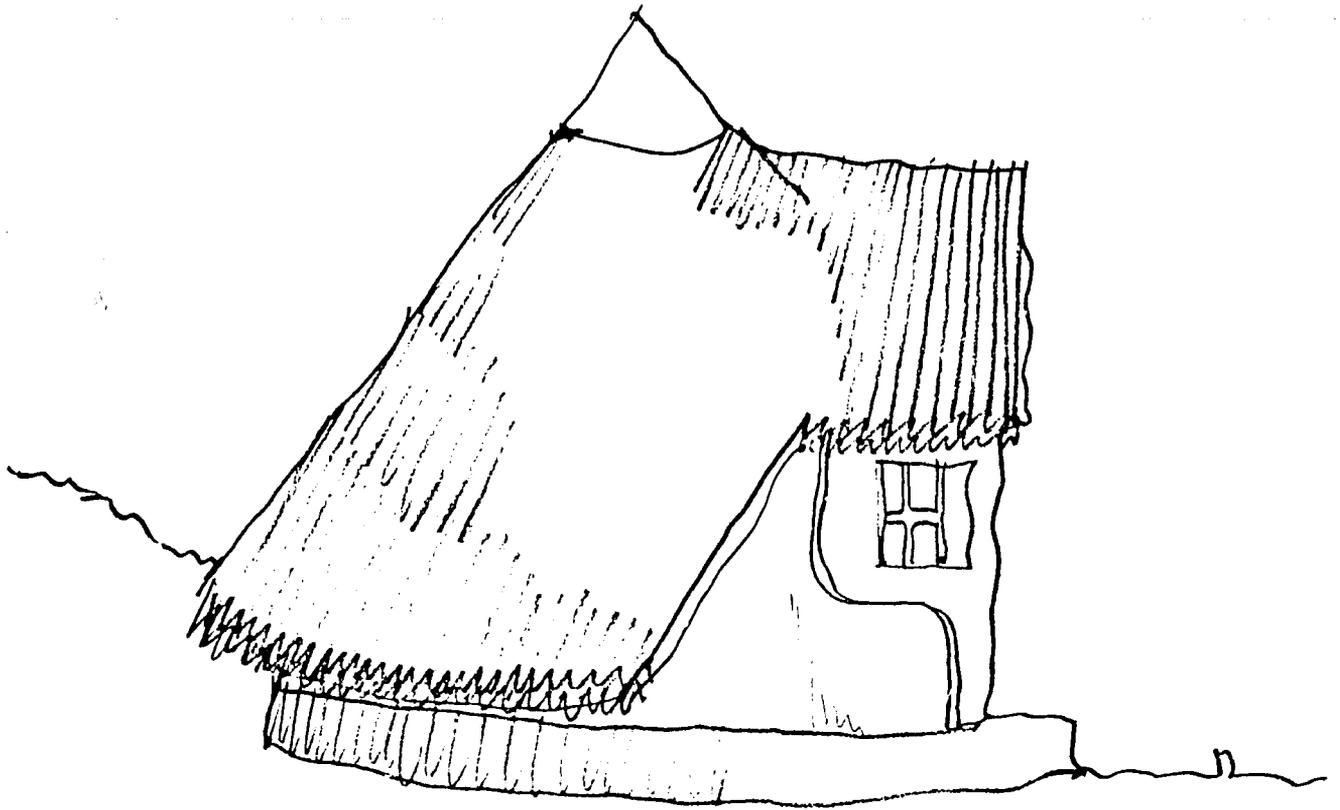
Let the Sun Shine In

The sunlight brings heat with it and if let inside the house through windows, will help keep it warmer. More windows or ones that are larger than usual should be added, facing north or northeast. To maintain privacy, add any large windows above the top of the wall.



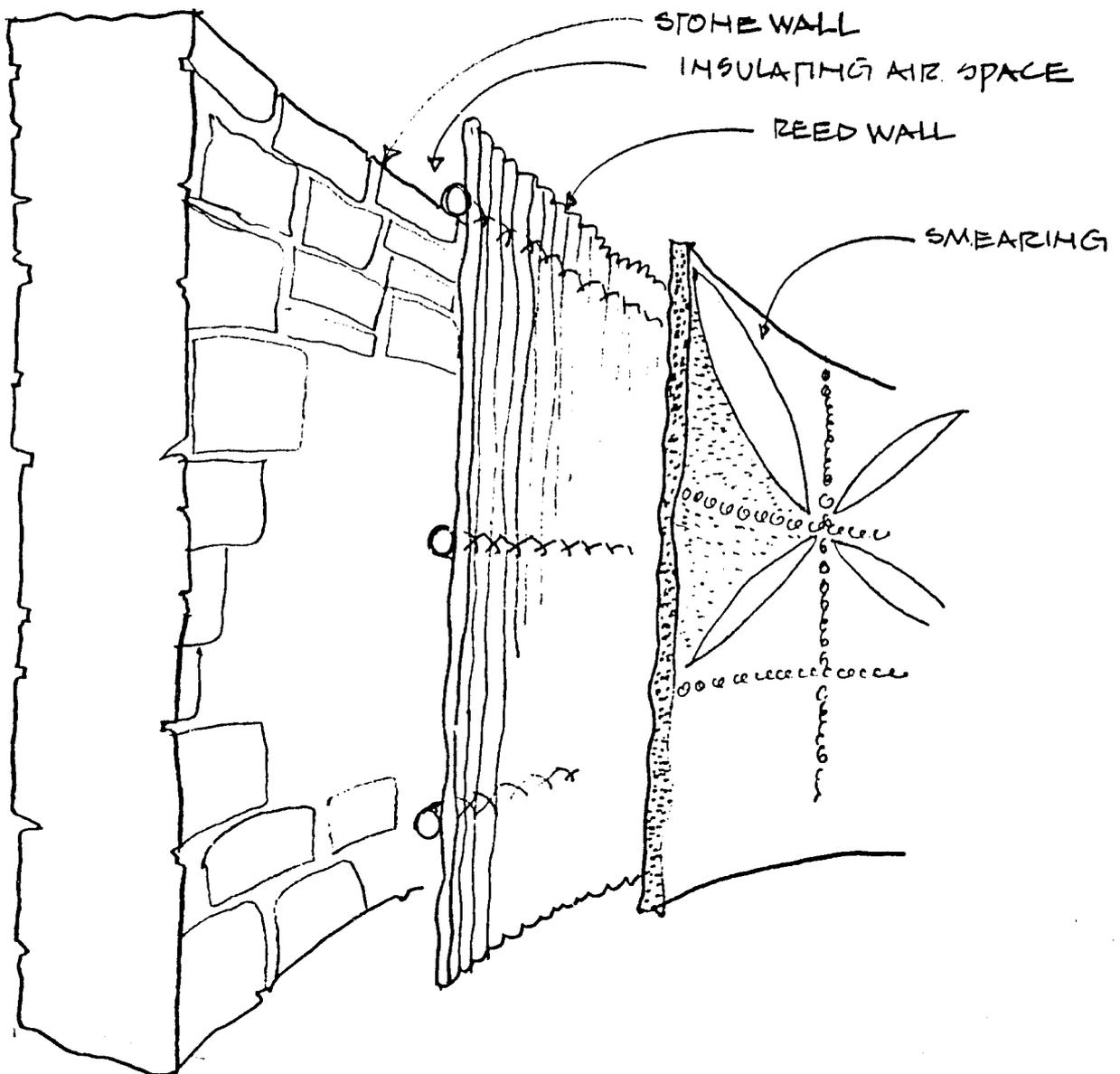
Button-Up the Door

In winter, you button-up tightly to keep cold air out and warmth in. The same for your door. If the door is not matched to its frame, a lot of cold air comes in all around it. Put a strip of sheepskin or cloth all around the sides and top of the door to cut off the wind when the door is closed. At the bottom, the wind can be cut off by a rise in the floor level. This way, all four sides of the door are sealed, and cold wind kept outside.



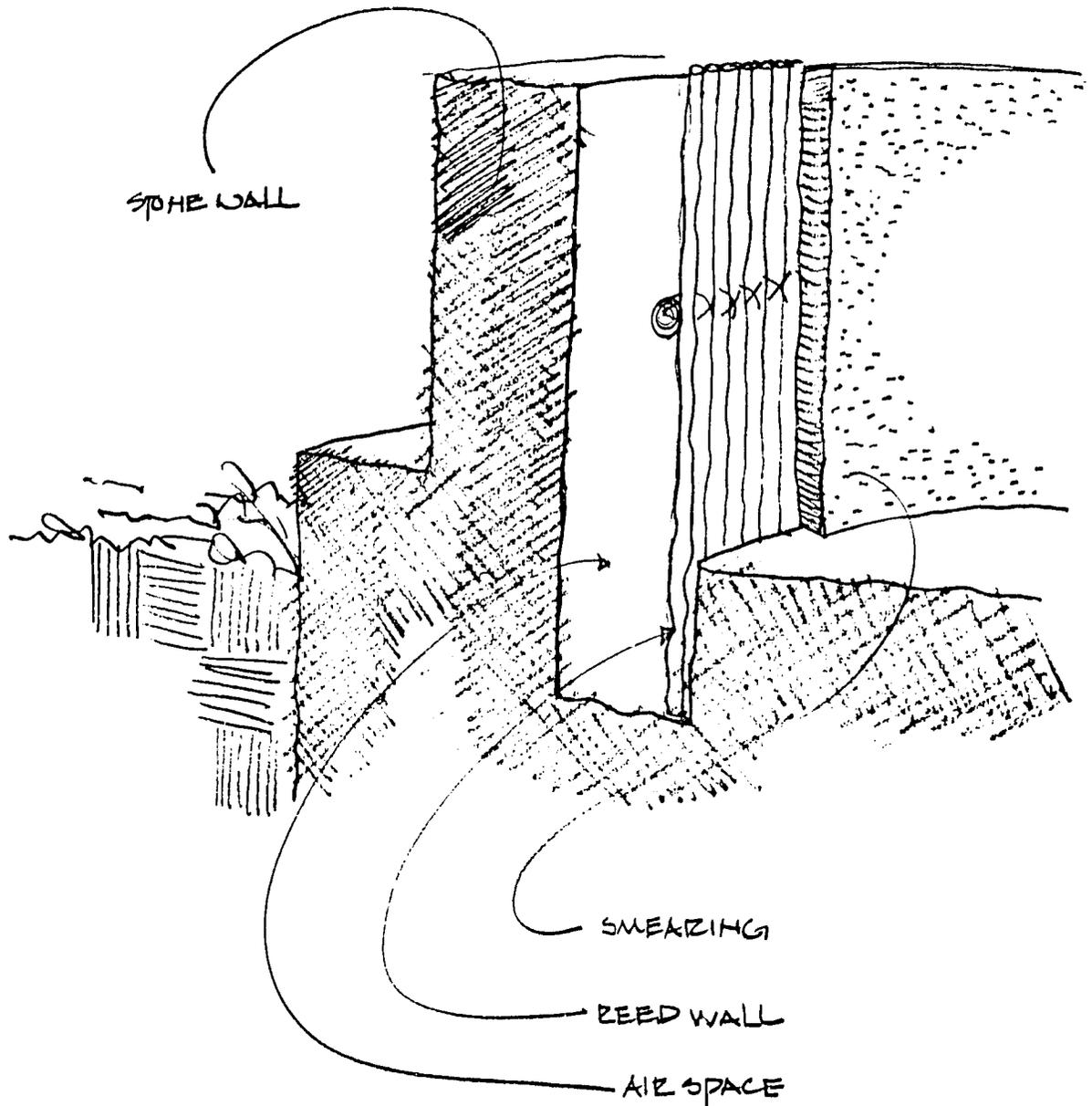
Put a Blanket on the South Wall

Because it gets no sunlight, the south wall is cold and a lot of heat is lost through it. One way to reduce the amount of heat lost is to bring the thatch roof down around it. This contains the heat as well as keeping the cold wind off--just like a blanket.



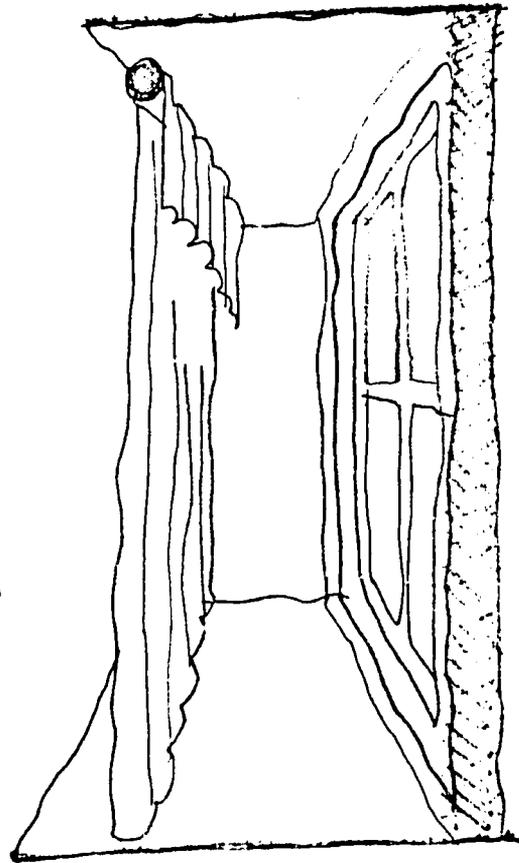
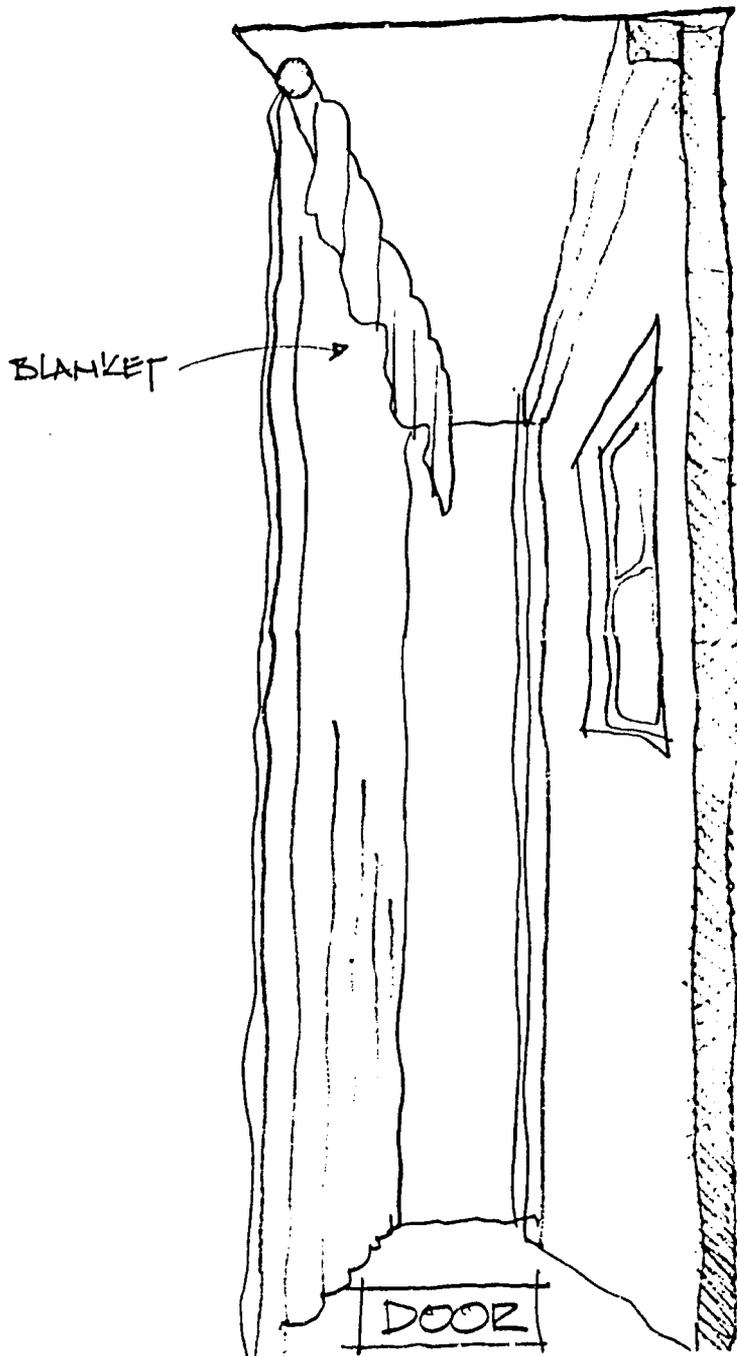
Two Walls are Warmer than One

Two blankets are warmer than one, and the same goes for the walls of your house. This is because a thin layer of air is trapped between the outer and inner blankets or walls, and it is difficult for heat to escape across this layer. Build a smeared reed wall inside the stone wall, and you will trap a layer of air between the two. Your house will be warmer.



Put Socks on the Building

Socks are warm because they trap little pockets of air which keep heat from escaping out of your shoes to the cold ground. Because it is in contact with the cold ground, a lot of heat escapes out around the edges of the floor. So, put "socks" on your house. If the ground is dry year-round, continue the reed wall down below the floor level to cut the floor and heat off from the cold ground.



Put a Sweater on the Building at Night

At night, you dress more warmly than during the day so you can conserve more heat as the air gets colder. The same goes for your house. To keep the heat inside longer, it is important to cover up the door and windows with blankets, particularly if they are loose and drafty. On a cold windy day, you can even leave the blanket over the door all day long.