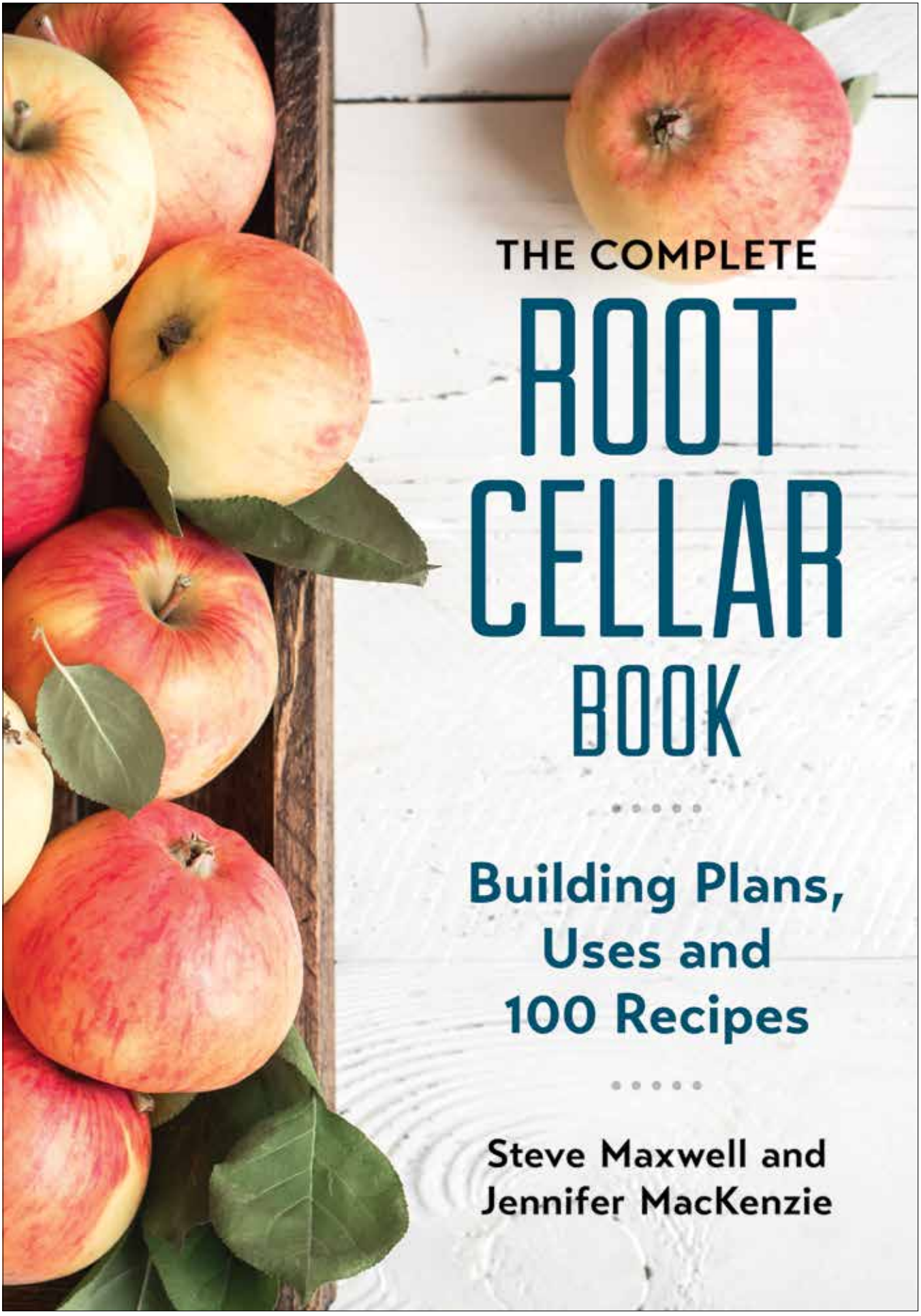
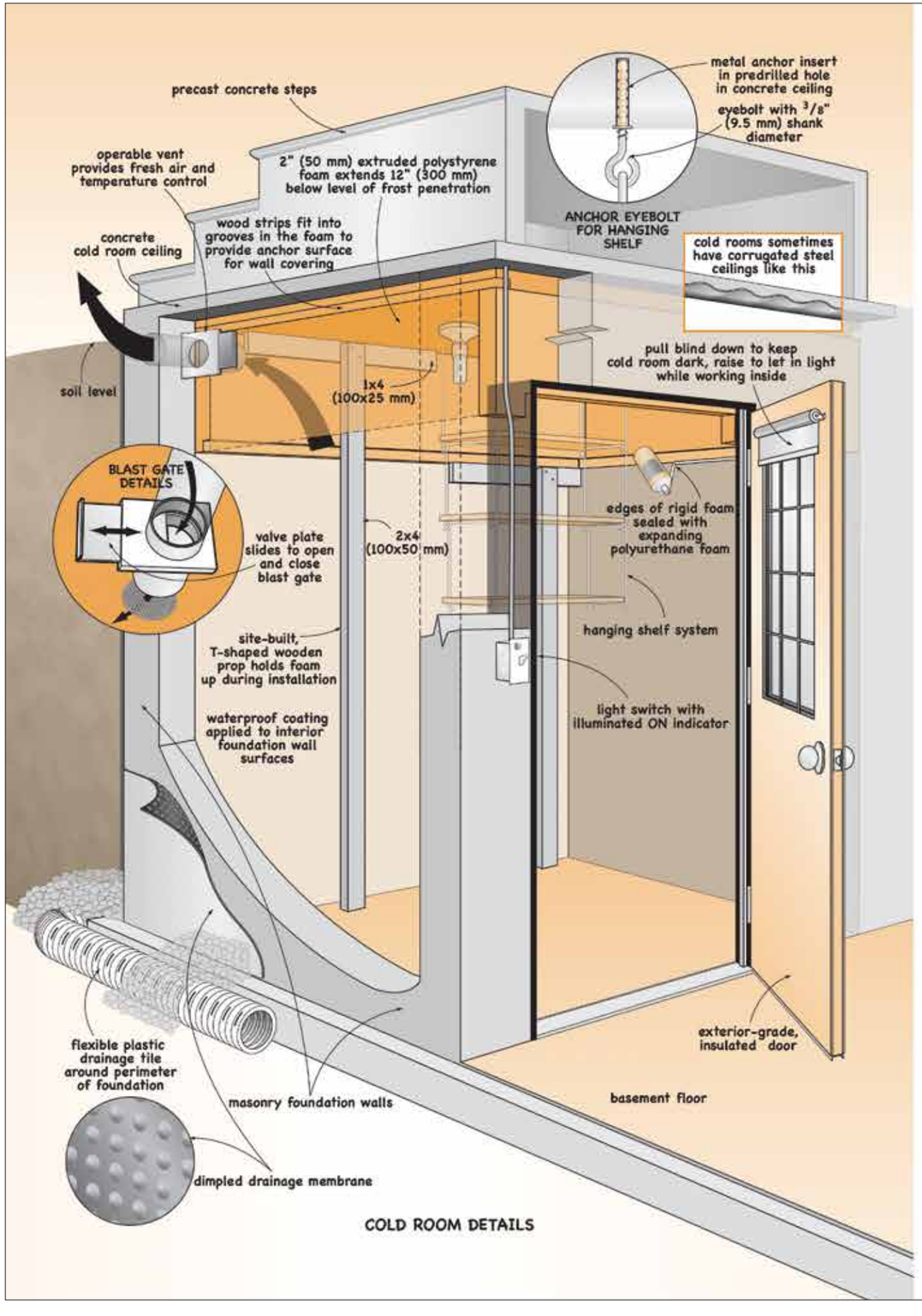

THE COMPLETE
ROOT CELLAR BOOK
Building Plans, Uses and 100 Recipes
Steve Maxwell and Jennifer MacKenzie



COLD ROOM DETAILS

Tuning Up Your Cold Room

It takes less than two days' work for an average homeowner to modify a typical cold room so that it functions as intended.

Our growing desire to have a basic basement food storage zone, even if we live near a grocery store, hasn't gone unnoticed. Homebuilders realize that the call for space to keep at least a few bags of potatoes isn't going to disappear, and that's why they usually include a cold room in new home designs. Or at least, they try to. Few of these modern cold rooms, typically located underneath a set of concrete stairs at the front of the house, actually work the way they're supposed to — at least, not without some serious souping up. While even a fully functioning cold room won't be able to maintain the 32°F to 40°F (0°C to 5°C) temperatures and 80% to 90% relative humidity levels that are the ideal conditions for certain vegetables, renovating a cold room so that it functions as a cold room is still worth the effort. This is especially true if you don't have a lot of food storage space in other parts of your house.

If you have an under-the-front-porch cold room, you probably know all too well that it has some limitations. Poor cold-weather performance tops the list of troubles in many standard-issue cold rooms, especially in regions where wintertime temperatures drop below 15°F (–10°C). Cold rooms are typically way too cold in winter. Most designs sit high enough out of the soil that frost penetrates at least the top 25% and sometimes even 50% of the structure. Besides making the cold room too cold, inadequate soil buffering also leads to the formation of frost on the interior walls and ceiling as internal masonry surfaces drop below freezing. On its own, frost on walls might not seem like a disaster, but when it melts and runs onto the floor, it comes close. Besides soaking the floor, the added moisture can boost airborne humidity high enough to promote mold and mildew. Not good.

Poor warm-weather performance usually goes hand in hand with a cold room that's ineffective in winter. This is problem number two. Without the moderating effects of enough soil around the structure, cold room temperatures are likely to get much too high in the summer for effective root cellaring of any kind.

Water leakage into under-the-steps cold rooms is the third most common cold room headache. It has two sources. Water can seep in through the walls of the structure or down from the top, through or around the precast steps. Despite their solid appearance, ordinary concrete blocks and poured concrete aren't fully waterproof. Often they're not even close.

Most basement water leaks are caused by water pooling against the building.

While wide swings in cold room temperatures are a more common problem than water leaks, and temperature problems are easier to fix, water leakage is a more serious problem because a wet space can never function as a cold room. Water

Transpiration is the loss of moisture from living plants, and the process continues even after produce has been harvested. Root cellars preserve food by reducing the rate of transpiration as much as possible with high humidity, though you do need to be careful. Transpiration can raise humidity too high, especially when produce is sealed in closed containers.

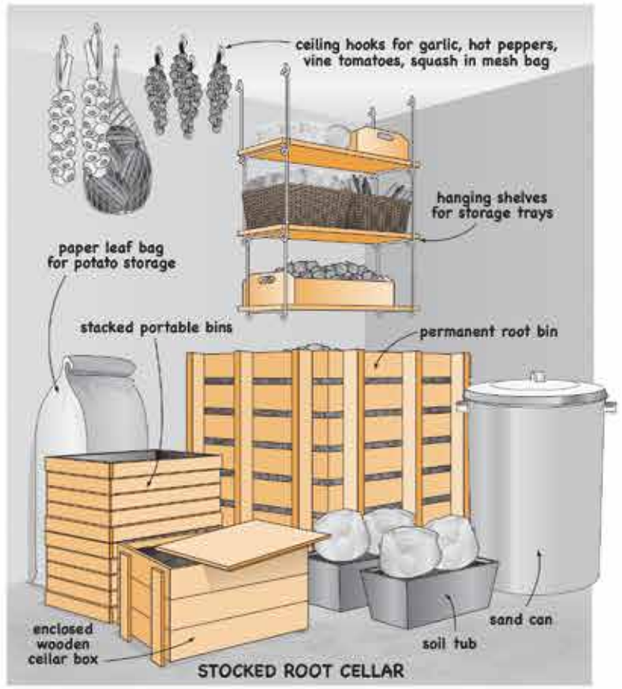
To prevent ethylene from spreading from apples to other produce, you can store apples in sealed plastic bags, with one pinhole in the bag per pound of fruit inside (two or three pinholes per kilogram).

need it. Sealable containers such as sand cans (see page 98) and wooden boxes with lids (see page 99) allow you to achieve the high-humidity (90% to 95%) storage conditions required for the best preservation of beets, carrots and other root crops. Layer the produce with damp sand, sawdust or peat moss as you pack it away, then either close the lids or leave them partially open to control humidity. The damp packing and the transpiration of the fruit or vegetables themselves create a moist microclimate inside the container, even in a cellar that is considerably drier than ideal.

If your cellar gets too humid, boost ventilation if the outdoor air is cool and dry enough. After increased ventilation, if the ambient air is too moist to lower relative humidity, place open containers of hydrated lime in the cellar. This white powder absorbs many times its weight in moisture. When the lime stops working, or you don't need it anymore, sprinkle it on soil or compost piles — it contains a lot of calcium and reduces soil acidity.

Another good reason to store each type of crop separately is the issue of produce personality. Some fruits and vegetables simply don't sit well next to each other. In some cases, this is a matter of flavor transfer (who wants apples that taste like onions?), but it's also a chemical thing. Some ripening fruits, including apples, avocados, bananas, melons, peaches, pears and tomatoes, give off a colorless, odorless gas called ethylene, which causes neighboring produce to ripen and spoil prematurely. Broccoli, cabbage, cauliflower and leafy vegetables all go bad much more quickly in the presence of ethylene, because it signals them to drop their leaves in a process called abscission — just one of nearly two dozen different plant responses to ethylene. Ripe apples, a prolific producer of ethylene, also cause potatoes to sprout and get soft. Depending on the size of your cellar, how much fruit you are storing in it and how much ventilation you have, it may be enough to keep ethylene producers on the other side of the cellar from ethylene-sensitive foods. If not, you'll need to find a separate place to store ripe fruit.

An 85% ethylene, 15% oxygen mix was historically used as an anesthetic for surgery. In concentrations as low as one part in 10 million, ethylene acts as a fruit-ripening hormone.



STOCKED ROOT CELLAR

Cellar Division

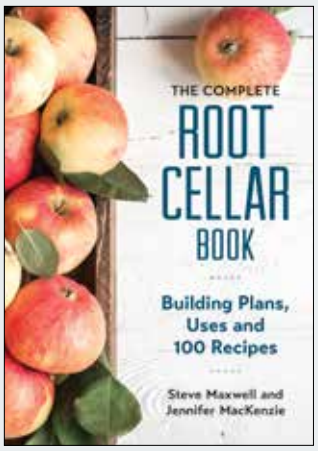
Since the range of ideal temperature and humidity conditions for various foods is wider than you can expect to achieve in a single cellar space, dividing your cellar into two or three sections makes sense. This allows you to store things like avocados, bananas, garlic and onions in cool and dry conditions, while giving beets, carrots, eggplants, potatoes and turnips the cold and very moist conditions they need. The process is simple: create an insulated wall and door to divide one section from the next. Make sure each section has a separate controllable vent to the outdoors. If your floor plan allows it, it's nice to have a door from the basement into each section so you don't have to walk through one zone to get to another. Before building your cellar, consider its layout and location, then orient it so that the part you want to be coldest has the most exposure to subterranean wall surfaces.

Crop-Specific Storage Containers

Regardless of what foods you are cellaring, you will need containers to keep them organized and in good condition. The type of containers you choose will have a huge effect on your experience of root cellaring.

Portable Bins

The bulk of root cellar storage happens in some kind of bin, and most traditional bin designs are permanently installed in the cellar (see Permanent Bins, page 94). While this approach works, in 1991 Steve developed a system of interlocking, build-it-yourself portable wooden crates. He calls them win-win storage bins, and the instructions for building one are on page 96. The design includes short legs that interlock with the bin below, making stacks more stable. As many as four bins can be safely stacked on a hard, flat floor.



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THE COMPLETE ROOT CELLAR BOOK

Building Plans, Uses and 100 Recipes

Root cellars are nature's way of storing fruits, vegetables and preserves

Whether as a way to manage challenging economic times or to retain a garden bounty, root cellars are making a big comeback. This book takes a fresh look at the art and science of building, stocking and living well with a root cellar. It includes detailed and illustrated construction guides for making four different kinds of root cellars, including never-before-seen models for apartment- and condo-dwellers and homeowners without a basement.

Must-know information on how to choose, store and manage a supply of vegetables, fruits and preserves is included, as well as 100 recipes that incorporate your stored produce into both classic and innovative dishes, with a focus on good nutrition.

There's truly no better or more natural way to store food than in a root cellar. Everything you need to know about this time-honored tradition can be found within the pages of this book.