The Wolf's Fault

by Gary van der Merwe

Only a fairytale Big Bad Wolf can blow a strawbale house down says GARY VAN DER MERWE, who tells us how to build one of these inexpensive and sturdy structures

IT MUST have been the wolf's fault. I mean, imagine, here's a wolf right on your curly little tail, slavering and slobbering in anticipation of some nice pork chops – yours – and you're expected to build a house. And when there's only straw available, what choice do you have? So you do it anyway. Admittedly it doesn't actually fall down but hey, it doesn't really stand up to Wolfie's huffing and puffing does it? Today there are any number of straw houses, some still standing since the late 1800s. They show no sign of collapsing or of being blown away – even by several packs of wolves. So the fact that Piggy's house isn't on the list must have been the wolf's fault.

Foundations

If you too are adamant about building a straw house, let me be the first to give you some good news: in the mid-1800s they invented the baling machine so today we can use straw bales rather than loose straw, as I suspect Piggy used.

Regardless of what material you choose for the foundations they need to provide a raised base – about 20 cm is good – so that the bales don't pick up moisture from the ground or accidentally flooded floors. Compacted gravel-filled trenches (the width of a bale) with wooden "ladders" along the length work extremely well. They provide the moisture protection and allow the wall to breathe.

Walls, windows and doors

Before we start the walls we need to have a quick look at windows and doors. I know this is a.a.f. (that's my abbreviation for "back to front") but then the pig didn't use plans and look what happened to him. Windows and doors should be multiples of bale thickness in height. Because of the way bales are bound, take care not to cut the binding when cutting the smaller fill-in pieces at corners and doors/windows. Bearing in mind that bales are stacked brick-like, decide upfront whether you're going to use them flat or on edge.

Next, each door and window needs a lintel, some sort of beam that will support the bales above yet not interfere with the opening below. Also, it shouldn't be so thick as to spoil the lie of the next course of bales. Maybe a ladder of welded square tubing long enough to span the opening plus a bale length on each side?

If you decide you want to cover the completed walls with chicken mesh (for the plastering), you need to drive some rectangular stakes horizontally into the bales to provide fixing points for the wire. However, the mesh is not essential if you're prepared to work the first layer of plaster into the straw. This will provide a good key for subsequent layers of rendering (technical term for "plastering", "cement covering", "mud", whatever).

An improved method is to dip the inside and outside faces of the bales that are going to be plastered in a clay slurry before finally placing them in the wall. Stack them while the slurry is still damp and finish off the join lines between the bales. Apart from providing a better finish, this method saves a lot of plastering time later on.

Back to doors and windows. Jambs, lintels and thresholds can all be secured to the surrounding bales with wooden pegs. Because the walls are so thick, position the window frames nearer the outside of the wall. This gives you a deep, useful and decorative sill on the inside – ideal for cluttering with pot plants, this-and-that or a sprinkling of that-and-this. Such a sill on the outside of the window would provide a perfect surface for water to lie on – not something you want.

Plan to chamfer the walls on the inside of the window openings to an angle of about 45° from just inside the frames as this will allow light into the house that would otherwise be blocked by the thickness of the walls.

Roof

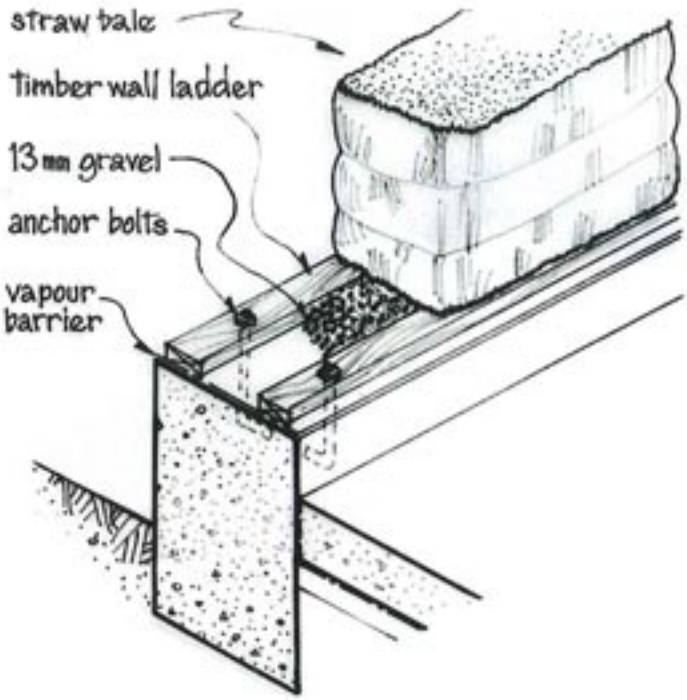
And now to cover it all. Firstly, seriously consider building a hipped roof, as this makes the walls the same height all round. If you go for gabled end walls (which grow to a triangle to fill the space up to the top of the roof) they stand a good chance of falling as the bales settle.

Next, because a roof constructed directly on top of walls exerts strong sideways forces, you might require either a roof plate or a continuous ring beam. A plate, being strong enough to contain the roof stresses, could also serve as a ceiling. A ring beam, which is joined at the corners of the perimeter walls and thus forms a continuous structure lying on top of the walls, serves the same purpose but without providing a ceiling.

Finally, taking into consideration finances, aesthetics and the environment, you have a choice of a metal, thatch or tile finish. Don't ignore the weight component, which makes the plate/beam supporting system so important. Regardless of the rendering you apply to the exterior walls, it would be advisable to provide deep, sheltering eves as extra protection for your house. They might even be extended to form a deep veranda.

Interior walls

Here you can use whatever you wish – dry walling, brick, whatever – but try to keep them thinnish to conserve space. Of course, that's unless you want to reduce noise/sound from an in-house music studio, the kids' corner, a family/rumpus room. In such a scenario, plan to have at least some interior walls built of bales as well.



The Authorities

Although there are a number of construction variations on the strawbale house theme, what we have here is a good foundation to start planning from. The technique might not be new, but it is different. Local authorities might vary in their requirements, but they don't have anything against strawbale houses as such provided they comply with local building rules and regulations.

Comparisons

Although odious, comparisons are sometimes useful. When comparing building with straw bales to more conventional building methods, the three prime components are Time, Cost and Quality. And, like many good decisions, there is an element of compromise. For example: completing the job quickly might cost more and the quality might suffer. However, keeping quality a constant yet spending less would likely take a lot longer. So, swing your swing and ride your roundabout – and decide how you want to play it.

The house will likely take longer than conventional methods for no other reason other than that it would usually be owner-built and the labour force restricted, so expect to be building for up to a year. But because of the involvement of the owner the quality might well be better – although it could suffer if the process is rushed.

Regarding cost, the comparison is less clear-cut because of the many variables. But by cancelling as many of these as possible we come to the cost of building a square metre of wall using either straw or brick. You'll need about 2½ bales or about 32 bricks. Bales cost around R20, add on R30 for the plaster, slurry, stakes, mesh etc and you get R50. On the other hand, bricks will set you back R48, the bag of cement another R60 and the sand, plaster etc R12 – total: R120. But beware – these figures are by no means definitive. Do not lose sight of the variables!

So do your homework, ask questions, decide what it is you really want, and let your creative juices flow and your dreams soar. Remember that Einstein said imagination is more important than knowledge.

It's true. He actually did. But don't let either the Wolf or the Pig Syndrome make you do anything ill-considered.

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