

"When building a wall, the best policy is to start at the bottom and work up" — Anon

THERE are several ways to part-wall a steel framed building.

Infilling with concrete blockwork is a good DIY option; using pre-cast panelling or corrugated steel sheet are others. But perhaps the strongest way is to cast the walls in situ.

Normally that is a job for a specialist contractor. But if you are prepared to spend some time and money making reusable shuttering, casting concrete is relatively cost-effective and not too hard. After watching a specialist at work, John Martin reckoned he could do the job for rather less money.

Since then, using the same basic technique, he has made a 30m x 18m (100ft x 60ft) commodity barn and a sizeable underground tank, the latter complete with lids. Now with a 22m x 15m (70ft x 50ft) tractor shed underway, here is how he does the walls.

Solid beginnings

If the finished walling is to be more than just infill between stanchions, ie be strong enough to take pressure from things like grain or silage, then it must be tied into the floor.

Following standard practice, John Martin reinforces a 150mm (6in) floor slab with a single layer of A393 mesh (fig 1). Approaching each edge, slab depth grows to 280mm (11in) and a second mesh layer overlaps the first. The slab also extends 280mm (11in) beyond the stanchion locations to form a strengthening heel.

Buried in the slab are starter bars, staggered vertically and horizontally so no plane of weakness is created (fig 1). These 16mm (0.63in) thick, T16 high-tensile items form the wall's iron centre. With the floor mesh sheets spot-welded together, the starter bars tacked to these on one side and wired to the wall reinforcement mesh on the other, all the building's concrete will be tied together by a basket of steel.

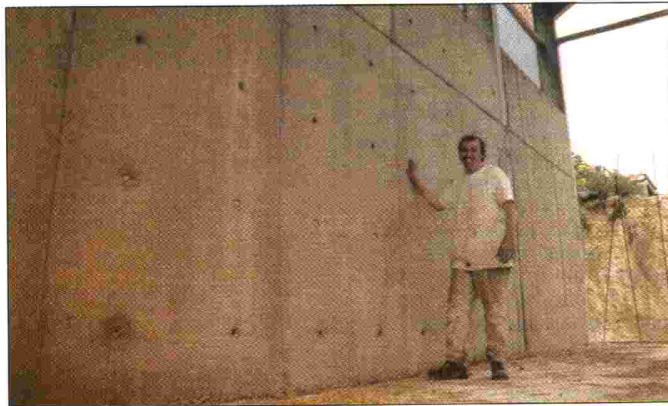
Figs 2 and 3 show a single shuttering panel, and the ways several of these can bolt together to suit different bay widths and wall heights.

Each panel is made of 50mm x 50mm x 6mm (2in x 2in x 0.24in) angle, and is reusable, the facing ply being good for at least 50 pours if looked after.

John Martin usually builds walls 2.4m (8ft) high, corresponding to standard reinforcing sheet size. Adding extra shuttering panels takes a wall to 3.6m (12ft). On the basis that the best way to learn something is to do it, we helped him build one of these across a 4.9m (16ft) bay. The pictures show the sequence.

CONCRETE SOLUTIONS THAT BOOST A BARN

When he is not building impressive bits of kit for his contracting business, farmer John Martin puts up buildings at his home base of Deverell Farm, Milborne St Andrew, Dorset. **Andrew Pearce** takes a short construction course



Here's one I prepared earlier... John Martin and a bay of his new tractor shed, which will measure 22m x 15m (70ft x 50ft) when it is finished.

COSTS, TIMES AND SUPPLIERS

- Shuttering. Each reusable 2.4m x 1.2m (8ft x 4ft) panel costs about £50 in materials, plus labour. Facing is a standard sheet of walling-quality ply. For a 20ft x 8ft wall, 10 panels are used (fig 3). Extra steel stiffeners for the lower section add about £25.
- Reinforcement. Walling a single 6m (20ft) bay to 1.2m (8ft) calls for starter bars and reinforcing mesh totalling about £100, plus 5cu m of 75-slump, walling-mix concrete at about £250.
- Time. Given a clear run, two men can prepare a bay, dismantle shuttering from the last pour, move it to the new bay, rebuild it, then pour/poke the concrete in four hours. The new section is left for 16-20 hours and the process repeated.
- Builder's merchants either stock reinforcing materials and sundries or will point you to a specialist. John Martin uses **Siteright Construction Supplies** (01258-858028). A petrol-engined vibrating poker can be hired from most outlets for about £70 a week, or costs about £850 new.

