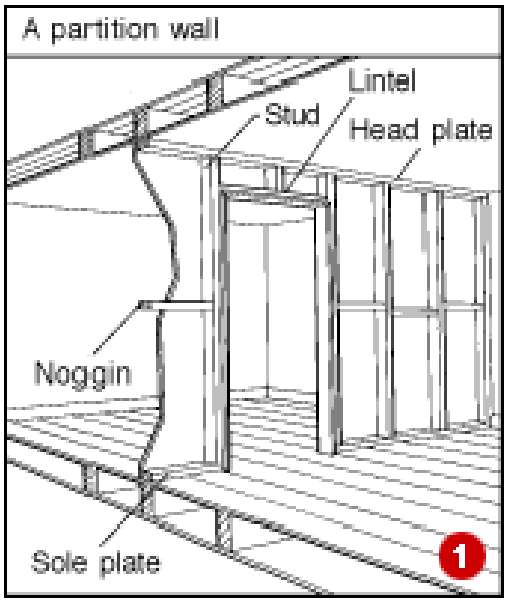
1 - Anatomy of a partition wall



The framework of a partition wall has four main components (1):

- the sole plate secured to the existing floor
- the head plate secured to the existing ceiling
- vertical timbers (studs) secured between the sole and head plates
- horizontal timbers (noggins) secured between the studs to provide additional support.

The spacing of the timbers is important: for 9.5mm (3/8in) plasterboard, the studs should be centred 400mm (15.25in) apart so that a standard plasterboard sheet (which is 1200mm wide) is centred on two studs with two other studs in between. Noggins should be fitted halfway up the studs to strengthen the frame. You also need to fit noggins if you want to mount heavy items - such as washbasins, WC cisterns, kitchen cupboards or central heating radiators - on the wall.

The timber used for the framework is 75mm x 50mm (3in x 2in) rough-sawn timber, and the various components are nailed together with 100mm (4in) nails. You will also need some planed timber for creating new skirting boards, architrave and door lining material for doorways, plus a new door and whatever other mouldings you require (for example, a dado or picture rail).

A door-lining kit, available from B&Q, has the door-lining material already cut to size, with joints at the corners. It also includes the necessary door stops.

2 - Planning the work

Before installing a partition wall to divide off part of an existing room, check the construction method of the adjacent walls. If one is also a stud-partition wall, moving the position of the new wall slightly may enable you to secure it to an existing stud. A stud-and-joist detector will enable you to find the stud positions.

Check, too, which way the floorboard and ceiling joists run (not necessarily the same). Ideally, they will be at right angles to the new wall, but again careful positioning of the new wall may be necessary to coincide with a parallel joist - particularly on the floor. If the partition wall has to go between floor or ceiling joists, lift the floorboards below or above and secure 50mm x 100mm (2in

x 4in) timbers at right angles between the existing joists to support the new wall.

Think about light for the newly-created room. If you are utilising an existing window, the wall will need to be positioned carefully so that the window can be shared by both rooms.

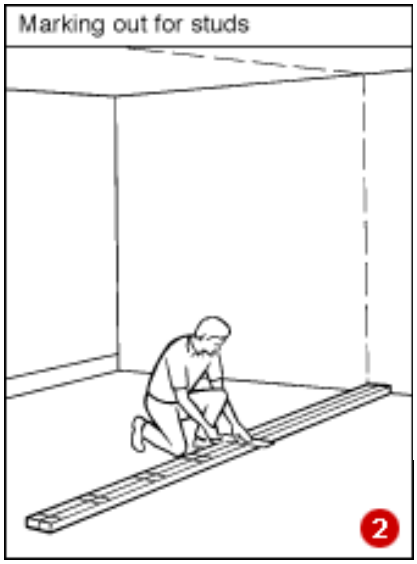
It is not difficult to build a doorway into the new partition wall, but careful positioning can minimise the amount of plasterboard-sheet cutting and fitting you need to do.

Think about any socket outlets you might want in the new wall. A stud-partition wall is ideal for running electric cable, but you need to plan the run first and install the cable before the plasterboard is added.

3 - Setting out

Remove floorcoverings, such as carpet, and mark the position of the new wall on the floor with chalk, using a length of sawn timber as a guide.

Continue the lines up the walls, using a batten with a spirit level or a plumbline to keep them vertical, then snap chalk lines across the ceiling. Use the plumbline to check that the position of the head plate is exactly above the sole plate.



Cut the sole and head plates to length (remembering to allow for the doorway on the sole plate) and lay the pieces side by side to mark out the positions of the vertical studs (2). The width of the door opening is the width of the door + 6mm + twice the actual thickness of the door-lining material. There should be a full stud either side of the doorway (and a short stud in the centre): work outwards from these two studs to mark the remainder.

4 - Fixing the frame

If necessary, cut slots in the skirting board (and dado rail, picture rail or coving) to take the sole plate and wall studs. The alternative is to cut the wall studs to fit around these mouldings, which may be easier.

To cut wall studs (or plasterboard sheets) to fit around a wall moulding, use a profile gauge to transfer the shape of the moulding on to the stud (or plasterboard sheet).

Drill and countersink holes in the sole plate, and screw it down to the floor joists (or intermediate supporting timbers), using 100mm (4in) No. 10 countersunk wood-screws. On a solid floor, drill holes with a masonry bit to fit wallplugs. Take the screws and fit a damp-proof membrane under the sole plate (a length of wall DPC is ideal). Fix the head plate in the same way, propping it in place while you put in the screws.

Measure the height of each outer wall stud (they may not be the same) and cut these to length.

Drill and countersink clearance holes for the screws, and mark the hole positions on the walls. On masonry walls, drill holes with a masonry drill bit for wallplugs; on existing stud-partition walls, drill 5mm pilot holes. Secure the studs to the walls, checking with a spirit level or plumbline that they are vertical. Use thin packing pieces as spacers if the walls are not straight.

To make securing the wall-stud easier, use 100mm (4in) frame fixers - long wallplugs with their own screws. With the wall studs held in position, you can drill through the clearance hole with a long masonry drill bit and then insert the frame fixer without moving the stud.

Fit the door studs next, cutting them to length to fit exactly between the sole plate and the head plate, then 'skew' nail them into position with nails driven at an angle through the end of the stud into the sole and head plate (3). Check (with a spirit level or plumbline) that the door studs are vertical and (with a tape measure) that they are correctly spaced before nailing them in position.

To prevent the studs moving as they are being nailed, secure an offcut of timber to the sole and head plate, right up against the sides of the studs. Get someone to hold the stud in the right place. It may be easier if you drill small pilot holes for the nails in the ends of the studs first.

Cut and fit the remaining studs in the same way, cutting each one to length, and using a supporting offcut to fix each one. Then cut noggins to fit between the studs, staggering them so that nails can be driven straight through the studs into the ends of the noggins (4). Over the doorway, fit the lintel and a short stud up to the head plate. The lintel over the door should be positioned to allow for the height of the door + 8mm (5/16in) + the thickness of the door lining + the thickness of any floorcovering.

It is vital that the door lintel is correctly placed and does not move. For the best results, cut notches 10mm (3/8in) deep in the sides of the door studs to hold the lintel, which then needs to be 20mm (3/4in) longer.

5 - Running services

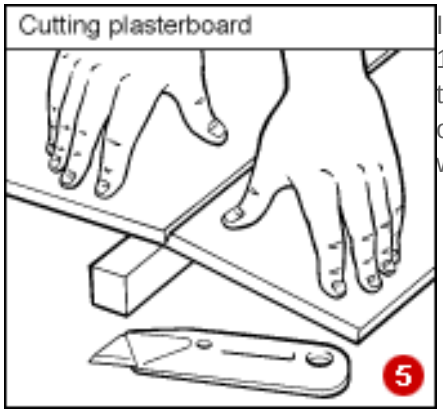
To run copper plumbing pipe within a partition wall, cut notches or slots in the studs; if you have to cut a deep notch or slot, fit a bridging plate over it to reinforce the stud.

Electric cables and flexible plastic pipe can be run in holes drilled in the middle of studs and noggins; if using metal boxes to mount socket outlets or switches, fit an extra noggin to support them.

Insulation material will help keep heat in and noise out; the easiest sort to fit is loft insulation. Use

an offcut of plasterboard to secure the insulation to the head plate or noggin and allow it to hang in the cavity.

6 - Lining the wall

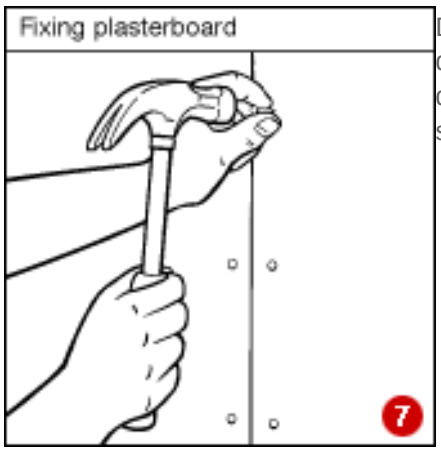


If necessary, cut the tapered-edge (T/E) plasterboard to 12mm (1/2in) less than the floor-to-ceiling height, using a trimming knife to score the surface and snapping the board over an edge (5). Remove the paper burr from the cut edge with fine sandpaper.

Starting at the door studs, position the plasterboard, ivory-side outwards, so that it is centred on the door stud and on another stud.

Lift it off the floor, using a 'floor lifter' (6) or a flat lever over a block of wood, so that it is tight up against the ceiling. Nail the board in place using 32mm plasterboard nails, 10mm from the bound edges and 12mm from the cut edges and spaced every 150mm.

To make a simple triangular floor lifter, take a piece of 50mm x 75mm (2in x 3in) timber around 225mm (9in) long, and cut off the corners.

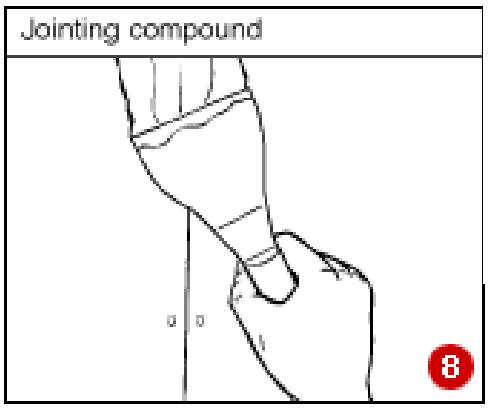


Drive nails up each edge (7) and into any central stud - you do not need to nail into the noggins. The nails should be driven until they just 'dimple' the surface - do not drive them so far that they break the paper.

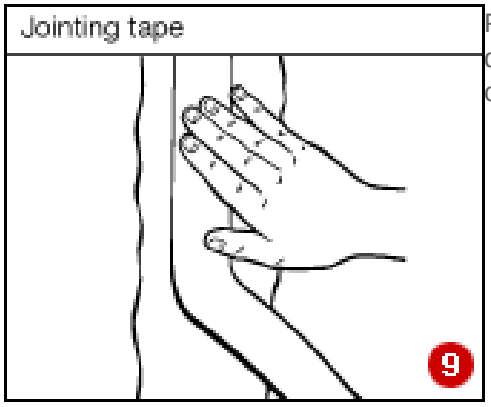
Continue to fit whole boards in the same way before cutting a board to fit across the doorway, and

before cutting boards to fit against the walls. If the walls are not straight, shape the plasterboard to fit.

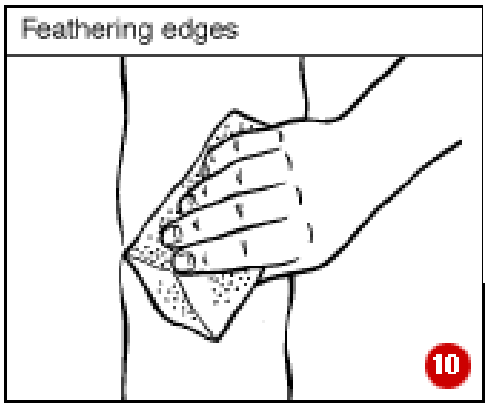
Cover the other side of the wall in the same way, and then use plasterboard jointing compound to make good the nail holes and the joins between the plasterboard and surrounding surfaces.



To join tapered-edge plasterboard, mix up clean plasterboard jointing compound in a clean bucket and press into joint with a filling knife (8).



Position the tape over the joint, running the knife firmly down it to bed the tape in, squeezing out excess joint compound and air (9).



Apply further jointing compound to fill the tape and allow to set. Now apply a final thin coat and feather out to just beyond the tape, smoothing it with a damp sponge just before it sets (10). Allow to dry and lightly sand to remove any high spots. Apply a drywall primer to the entire surface of the board and joints before final decoration.

In bathrooms and kitchen areas, the boards should be finished after jointing with two coats of drywall sealer.

Cut and fit the new skirting board, new door lining (and, if necessary, door stops), new door

architrave and any other mouldings required.