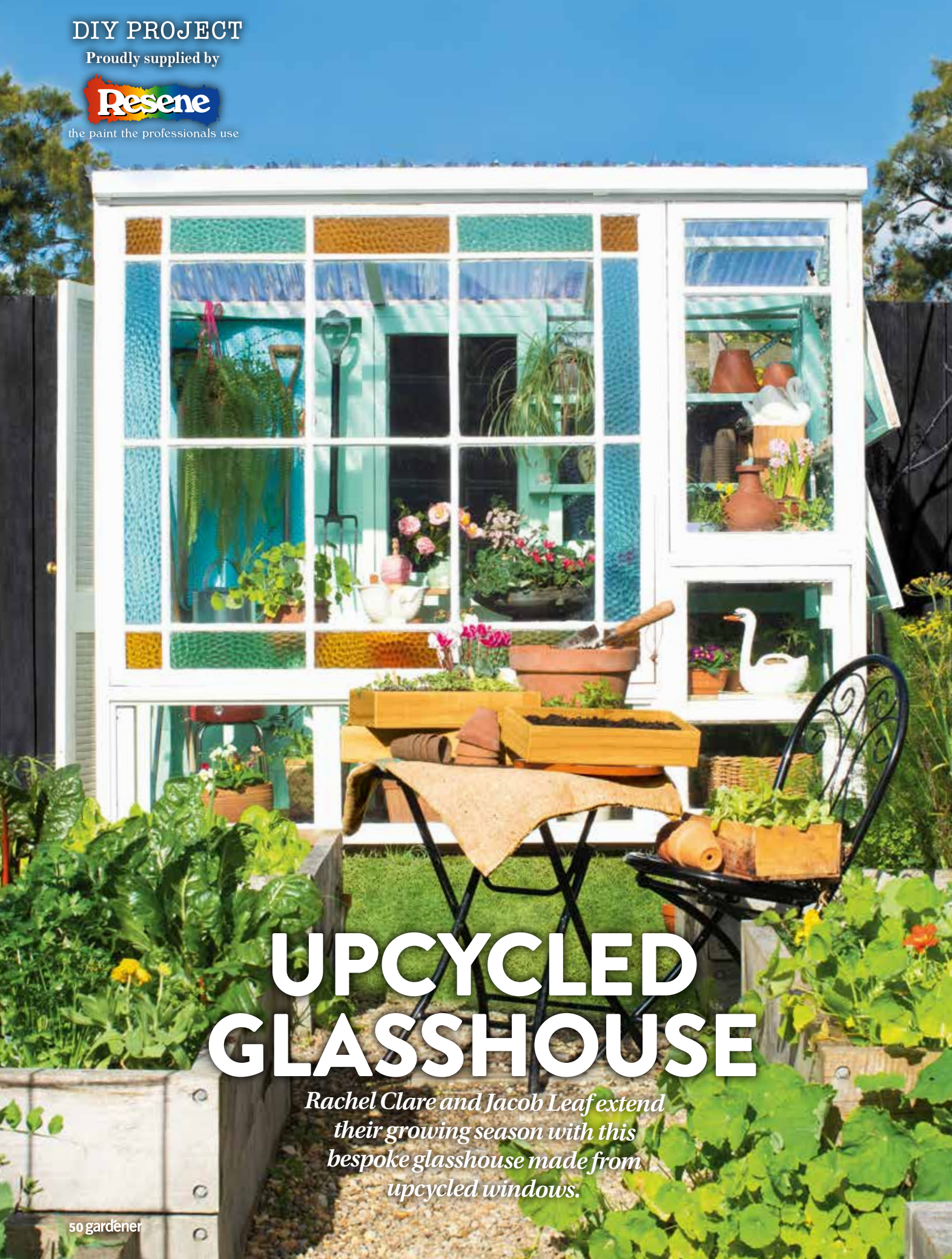


# DIY PROJECT

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# UPCYCLED GLASSHOUSE

*Rachel Clare and Jacob Leaf extend their growing season with this bespoke glasshouse made from upcycled windows.*



## MATERIALS

- You need** • Reclaimed windows (we used one large stained glass window and nine smaller ones plus four unframed sliding doors from an old china cabinet) • Door • Tape measure • Marking paint • Spade • Post level • Line level • String • Piles: 100mm x 100mm H4 radiata 1.8m fence posts (we cut three in half to make six piles) • Boxing for base: 100mm x 50mm H3.2 rough-sawn radiata (we used 8m) • Framing for walls: 100mm x 50mm H3.2 radiata framing (we used 53m) • Roof beams: 75mm x 50mm H3.2 rough-sawn radiata (we used 12.5m) • Solid wall area: 2400mm x 1200mm x 7mm H3.2 structural plywood (we used one sheet) • Framing to hold unframed glass in place: 18mm x 18mm H3 radiata square dressed moulding (we used 4m) • Concrete • Wheelbarrow • Stones (we used Waikato Fleck) • Rake • Drill
- 10g x 100mm screws (for boxing and framing)
  - 10g x 75mm screws (for roof)
  - 10g x 50mm roof fasteners
  - Hammer
  - 40mm flat-head nails (or any small nails)
  - 300mm bar clamps (or similar-sized large clamps)
  - 3.6m zinc galvanized angle brace (we used two)
  - 660mm x 1800mm corrugated PVC sheeting (we used five sheets)
  - Skilsaw
  - Mitre saw
  - Screwdriver
  - Ladder
  - Face respirator
  - Chisel
  - Groundsheet
  - Paint scraper
  - Painter's masking tape
  - Resene Timber & Deckwash
  - Resene Quick Dry Waterborne Primer Undercoat
  - Exterior: Resene Eighth Black White
  - Interior: Resene Fringy Flower
  - Paintbrush
- PAINTING** • Prior to cutting our timber for the wall frames and roof beam, we cleaned it with Resene Timber & Deckwash, then primed it with Resene Quick Dry Waterborne Primer Undercoat.
- COST:** \$1500, excluding Resene products.



**1** Plan your glasshouse with an overall size in mind. However, the dimensions of your glasshouse will depend on the sizes of the windows and door you use.

As a guide, the dimensions of our rectangular glasshouse are 2.6m x 1.4m, with a height of 2.15m at the front and 1.9m at the back to create a sloping roof so rainwater can run off (we are collecting our rainwater in a barrel to use as irrigation in the glasshouse).

We sourced our main feature window with the stained glass panes from

a demolition yard for \$400 then bought the rest of our windows and the door from our local refuse and recycling centre for \$100.

When collecting your windows, keep in mind that using multiple windows of the same size will make it easier to arrange them evenly rather than trying to cobble together lots of differently sized windows.

You will also want airflow in your glasshouse during hot weather, so try and find some windows with hinges and stays, which can still be opened to improve ventilation when necessary.

**2** Once you've collected enough windows and a door, lie them on a flat surface and arrange them so that you have two pairs of similar-sized walls (or four similar-sized walls if your glasshouse is going to be square). Don't worry if the walls aren't exactly the same size as you can fill any gaps with wood. Take into consideration any special features you'd like to include in your glasshouse. For example, to stop water from pooling on your roof, the front wall will need to be taller, or you may want some areas

of wall to be plywood rather than glass so you can hang up tools, disguise a rainwater tank or so there is some shade during the hot summer months. Another option for tricky gaps is to have unframed glass cut to size (it cost us \$10 for a glazier to cut four sliding doors from an old china cabinet to the correct size). Each window frame and the door will sit within a timber frame, so make sure you include the framing timber in your calculations when working out your final dimensions.

**3** To make the piles, mark out the four corners and the middle of the front and back wall with marking paint, then dig holes 600mm deep. Cut the 100mm x 100mm posts in half so you have six posts (make eight if your glasshouse is square). Insert posts in the holes, then use a post level to check that your posts are straight and even on all sides. Brace these with some scrap timber, then concrete in place. Once the concrete has set, use a string line level to mark your cuts, then saw the posts down to just above ground level.

**4** To make the boxing for the floor, cut the 100 x 50mm H3.2 rough-sawn radiata to size and screw it together with 100mm screws so it sits inside the post piles. Cover any grass or weeds with cardboard, old carpet or matting, then rake stones over the top.

**5** To construct the timber frame for each wall, use the laid-out windows as a guide for your measurements, then cut your pieces of 100mm x 50mm H3.2 radiata framing timber to the correct size with a mitre saw. On a flat surface, lay out one side at a time with the cut framing pieces as well as the windows and door. Drill and screw the pieces of timber framing together with 100g screws but do not screw the windows or door to the frames yet. You should end up with four separate wall frames. Attach the door.

**6** To create a solid structure that won't wobble in strong wind, we braced the back and sides of our glasshouse using zinc galvanised angle braces. To do this, attach the brace diagonally from the bottom of the frame to the opposite top corner with 40mm flat-head nails. To erect the walls, stand two adjoining walls on top of the post piles. Clamp them together

or have someone hold them in place while you screw them together at the bottom, middle and top with 100mm screws. Repeat with the other two sides, then screw the two right angles together with more 100mm screws.

**7** To make the roof beams, notch and bevel, cut evenly spaced lengths of 75mm x 50mm timber (we made 4 x 1.8m beams). Slot the notched end onto the front wall and the beveled end onto the back wall, then screw both ends to the walls with 100mm screws. Notch another beam (ours was 2.6m) and attach it lengthways across the middle of the roof with 100mm screws.

**8** Attach a length of 75mm x 50mm timber across the front and back of each roof beam (ours were 2.6m long).

**9** To screw all the windows into the frames using 75mm screws. Cut out any plywood for the walls or triangular side pieces for the roof with a skilsaw and attach with 40mm flat-head nails. If you are inserting any unframed pieces of glass, cut the 18mm x 18mm square-dressed moulding timber to the correct size. Attach one cut piece of moulding timber to one side of the wooden frame with 40mm flat-head nails, slide in your glass, then nail the other cut piece of moulding timber to the other side so it holds the glass in place.

**10** Position the corrugated PVC roof sheeting on the roof beams and use a screwdriver to screw the sheets to the front, middle and back beams with 50mm roof fasteners. Use a paint scraper to scrape any loose paint off the windows.

Any building painted before 1970 may have been painted with lead-based paint, which is toxic, so wear a properly fitted toxic-dust respirator and collect any paint shavings on a groundsheet. Alternatively, scrape the window frames before attaching them to the walls. Collect the paint shavings in a plastic bag and dispose of them according to local council requirements. (For more information on working safely with lead paint, visit [resene.co.nz/comn/safety/lead.htm](http://resene.co.nz/comn/safety/lead.htm).) Undercoat with primer if you didn't earlier, then paint. ❁

*Watch our video on this project at: [play.stuff.co.nz/details/\\_6171379849001](http://play.stuff.co.nz/details/_6171379849001)*

