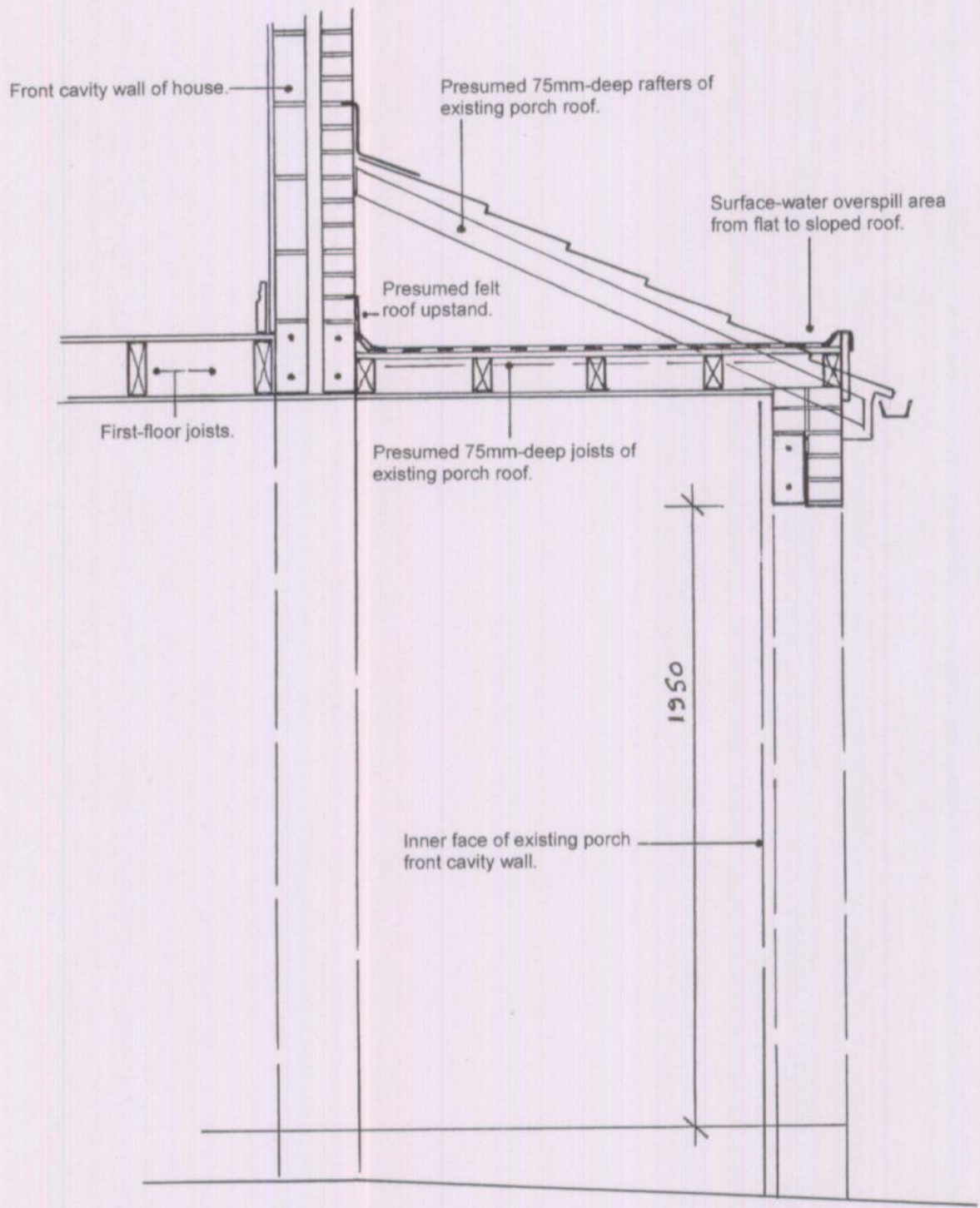


DETAILED CROSS-SECTIONS (1:20)



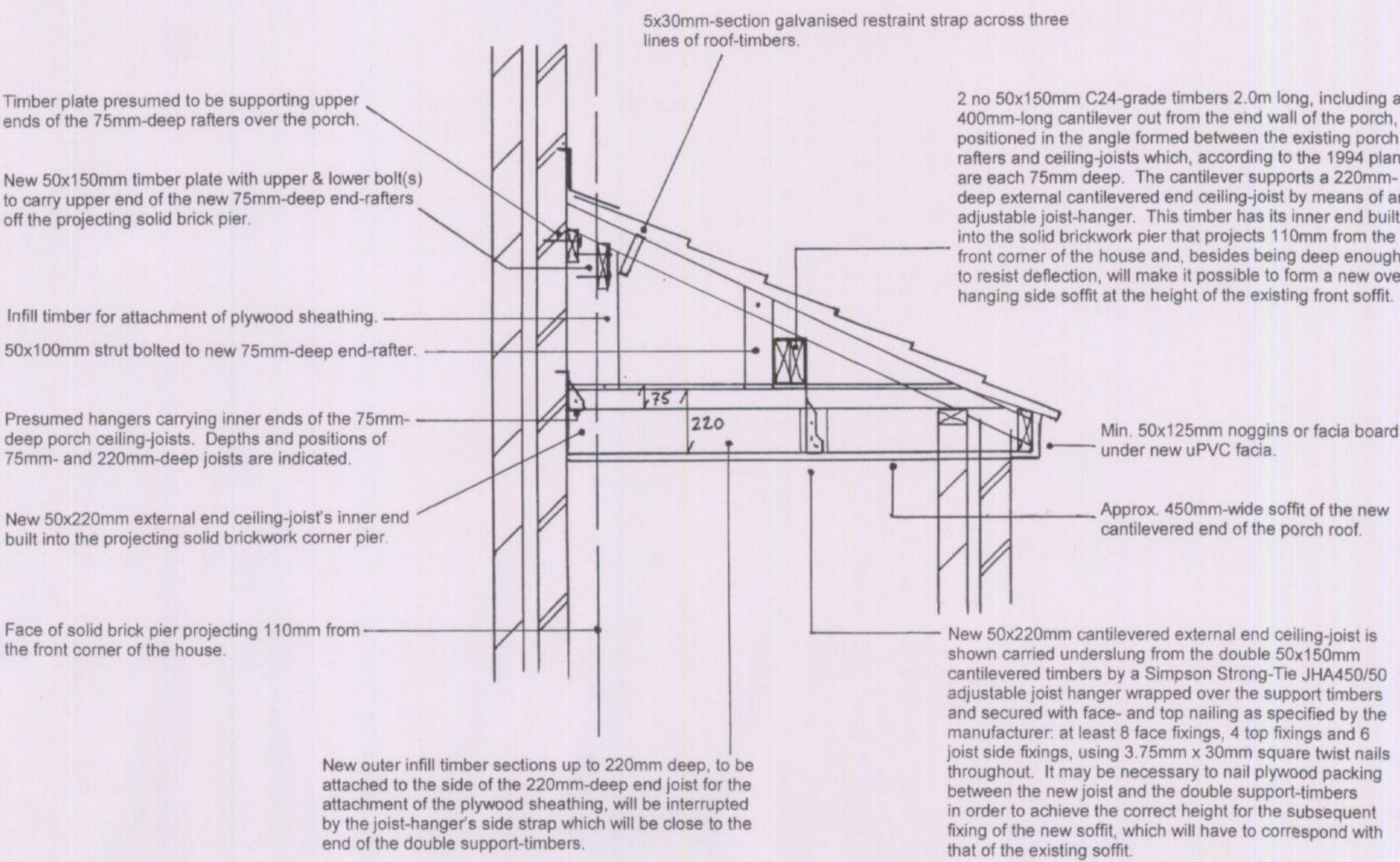
This cross-section shows the existing original flat-roofed part of the integral garage in relation to the front wall of the house and the adjoining mono-pitched roof of the front porch that was erected nearly 20 years ago.

According to the 1994 architect's plans, the pitched roof in question was specified with 75x50mm rafters and joists. These are therefore duly shown here, together with the present six courses of interlocking concrete roof-tiles and the lead flashing and soffit details that will be maintained in the extended pitched roof.

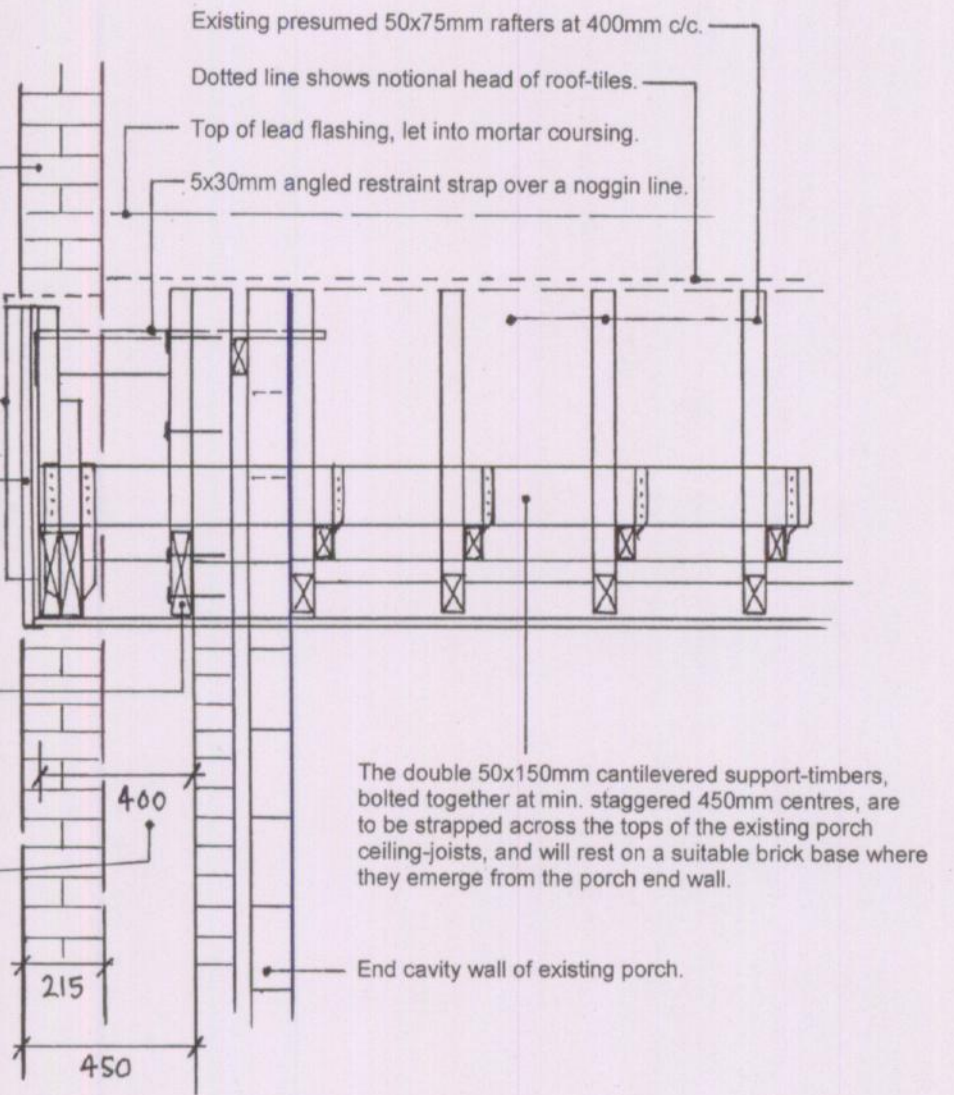
The existing flat garage roof has a front upland which directs surface-water to a gully on the west side where it spills over on to the adjoining tiled roof of the porch, and from thence falls into that roof's front gutter. This process may be assisted by firings which give a slight slope to the flat roof's surface, but it is impossible to tell from ground level whether or not this is the case.

The garage has a reinforced-concrete lintel in the inner half of the presumed 215mm-thick solid masonry over its front opening, though the outer half of this masonry consists of five courses of brickwork and must therefore be carried on a separate outer steel lintel, possibly one with an 'L'-shaped cross-section as shown. The second-storey main front cavity wall of the house is carried over the flush garage ceiling on either two steel beams or two reinforced-concrete lintels (as shown here) occupying a maximum depth of three brick courses.

From the known height of the flat roof and the internal depth of the masonry over the garage opening, it is possible to deduce that the garage roof-joists are some 125mm deep after allowing for the likely thickness of the roof-covering, the roof-deck and the garage ceiling. This means that the garage ceiling is at about the same height as the porch ceiling. The direction of span of these flat-roof joists is not apparent, but it seems likely that they are transverse (i.e., parallel with the front of the house) as shown here, rather than spanning from front to rear, and will therefore need to be replaced with fore-and-aft timbers that will tie together the base of the new roof section. Masonry-supported joist-hangers would appear to be the most practicable future means of carrying the inner ends of such new ceiling-joists over the front of the garage, as is shown in the accompanying Proposed New Pitched Roof Section. That drawing also confirms that the wall-plate to carry these new timbers over the garage front lintel will be within the depth of the topmost of the five brick courses presently visible externally over the garage opening.



Section viewed from west side.

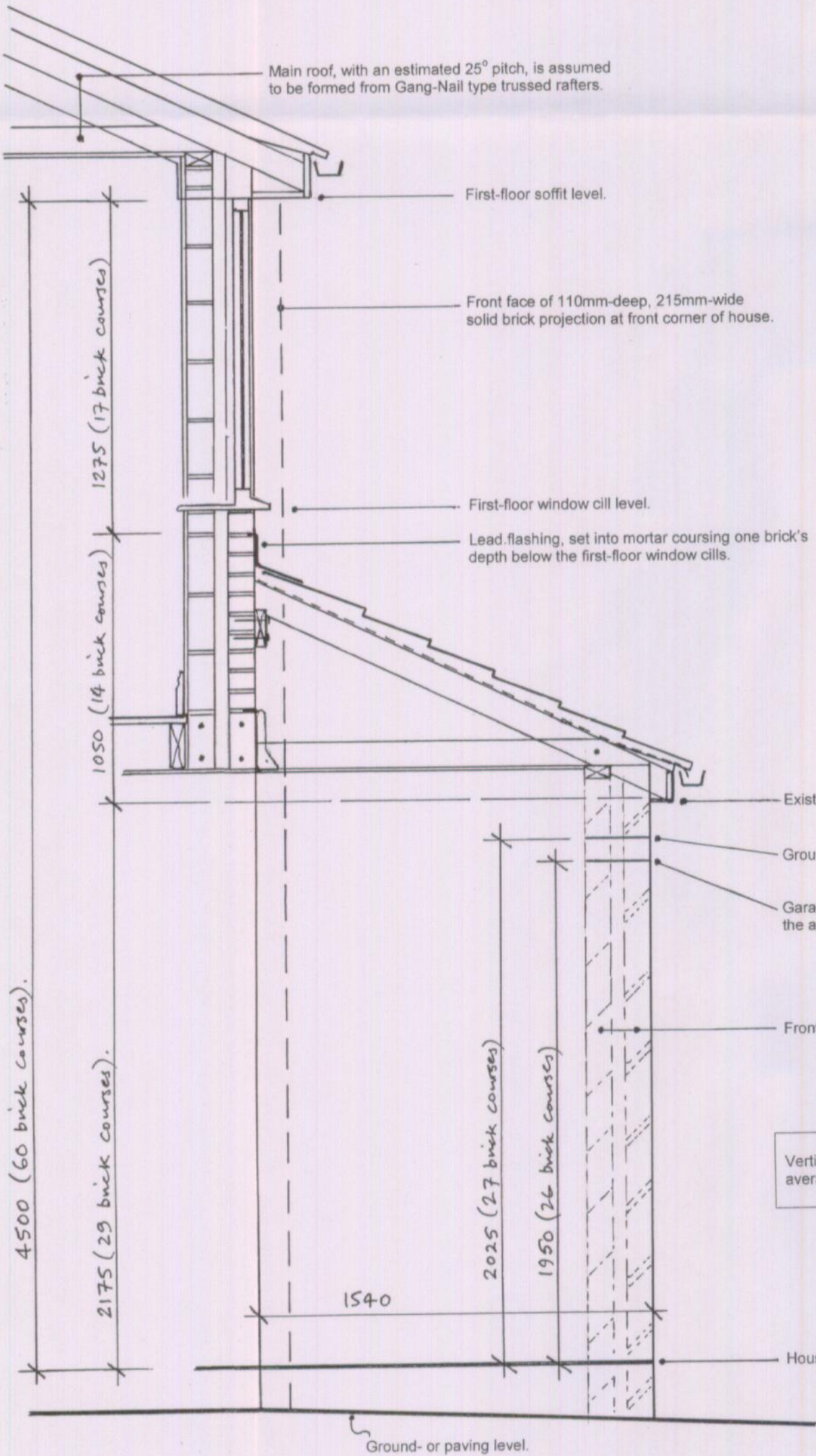


Section viewed from front.

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PROPOSED CANTILEVERED ROOF SECTIONS

PRESUMED EXISTING GARAGE SECTION



Remove the existing garage roof-deck and fascia and inspect the underlying structure. If the existing garage roof-joists are transverse (i.e., parallel with the road) they are to be removed, though if they are perpendicular to the road, at a suitable level and adequately anchored or fixable to the top of the masonry over the existing garage lintel they may be left in place and re-used in conjunction with the new rafters. See also the 1:20 Existing Garage Section.

Form the new roof section over the garage with 50x100mm C24-grade rafters and joists at 400mm centres to match the height and pitch of the estimated 25° existing porch roof. All timber-to-timber connections are to use min. M10 bolts, dog-tooth connectors and square plate washers. Fix the notched rafter upper ends to a continuous 50x150mm timber plate secured to the front wall of the house with Raviplug- or Fischer-type bolts at staggered 400mm centres, and similarly notch (or 'birdsmouth') the rafter lower ends as shown over a new min. 50x100mm wall-plate. The inner ends of the new ceiling-joists are to be carried on Simpson Strong-Tie JHM 225/50 hangers or equivalent, designed to sit within masonry coursing and deep enough to reach over the top of the steel beam or concrete lintel up to 215mm deep which is presumed to support the outer leaf of the main front cavity wall directly above the flush garage ceiling. Secure the new roof-timbers to the underlying masonry with approved galvanised anchor straps at max. 1.2m centres.

The Building Regulations do not require the garage roof section to be ventilated, but the opportunity should be taken in the course of the work on the front roof to up-grade the thermal insulation quilt within the existing porch roof to a depth of 300mm, in line with the current requirement for pitched-roof voids over flat ceilings. This will involve temporarily removing all tiles and laying a second 150mm-thick layer of quilt over and across the existing 150mm layer specified in the 1994 architect's drawings. In addition, it is recommended that the tile-battens also be temporarily removed to enable a 'breather' membrane such as Tyvek or equivalent to be draped and fixed across the whole roof (i.e., the existing and new sections) as an underlay to provide back-up waterproof protection in the event of tile loss or damage, together with passive ventilation of the roof void. This, together with the removal of any existing bituminous or plastic tile underlay, will make it unnecessary to fit a roof-ventilation strip to the extended soffit or fascia.

The extended roof is shown hung with six courses of standard 420mm-deep interlocking concrete tiles to match the existing type, and with a consistent 140mm headlap. Abut the new tiles to the party wall at the boundary, and waterproof the joint in a manner which will allow for the fact that the tiles of the neighbouring roof will be somewhat higher, and that the felt upstand which now appears to weather the half-gable of the higher roof will not be suitable for weather-sealing a gap between two adjoining but stepped tile surfaces. This will involve installing Code 4 lead flashing horizontally to a depth of 150mm beneath the verge strip which carries the tile-batten ends and the tile overhang of the higher roof, and dressing this leadwork down on to the lower tiles of No. 51 - and across these to a horizontal width of 150mm - while ensuring that all lead sections are adequately lapped from above. Then tightly fill the edge-gap of the higher roof-tiles (i.e., the whole gap between the verge and the underside of the linch) with cement faunching to prevent water ingress at this level. Finally, extend the Code 4 lead flashing which already weathers the head of the existing tiled mono-pitched low-level front roof across the full width of the house.

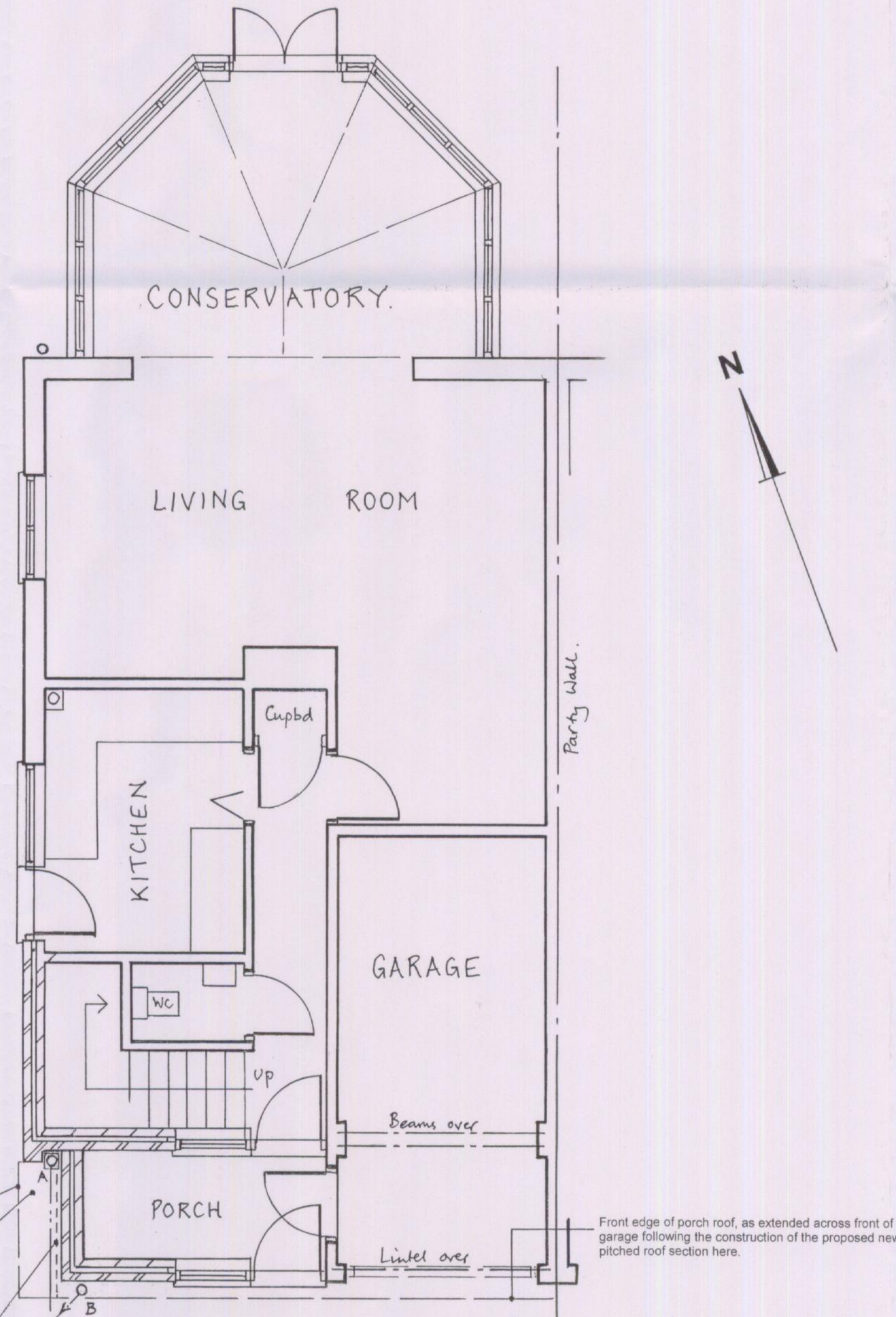
Vertical measurements are based on the number of brick courses counted between the given points, and an average vertical distance of 75mm between mortar-course centres in standard modern brickwork.

Broken line shows the edge of the proposed new cantilevered extended roof surface.

'A' = rainwater downpipe and gully currently draining the main roof directly, and also draining the porch indirectly via a side gully extension. This downpipe will in future terminate above, and will discharge on to, the new cantilevered roof extension, which will be drained by the new front downpipe 'B' that will connect below ground to the existing front surface-water drain discharging to a soakaway.

Dotted line shows the existing edge of the porch roof.

PROPOSED NEW PITCHED ROOF SECTION



EXISTING & PROPOSED GROUND-FLOOR PLAN (1:50)

Before scaling from the plans, check that the 200mm-long horizontal & vertical values are unchanged to ensure that no dimensional distortion has occurred during copying.

PLANNING & BUILDING REGULATIONS APPLICATION Sheet 2 of 2

CLIENTS AND SITE LOCATION:
MR AND MRS WILLIS,
51, LESLIE ROAD, RAYLEIGH, ESSEX, SS6 8PA.

PROPOSALS:
1: Replace the original projecting flat roof of the integral garage with a tiled mono-pitched roof section, as a matching continuation of the existing monopitched roof over the front entrance porch.
2: Extend the roof of the existing entrance porch westwards by some 450mm to align it with the west face of the house.

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DRAWING NUMBER 14/0304: 2(2) MARCH 2014.

SHEET 2 OF 2: DETAILED 1:20-SCALE CROSS-SECTIONS;
EXISTING AND PROPOSED GROUND-FLOOR PLAN.