5.5mm integral plywood top face of Celotex Tempchek Deck TD4126 insulating roof-panels, above a 120mm thickness of isocyanurate foam, forming an unventilated "warm-deck" flat roof.

> Min. 12.7mm plywood sub-deck, fixed over 50mm-wide firrings to form a 1:60 slope to the rear gutter.

> > Built-up timber nosing.

n ← 100mm half-round gutter.

-50x200mm structural facia, secured with screws and secondary thin-section galvanised fixings and covered with an approx. 10mm-thick foam-cored uPVC facia-board.

uPVC/foam soffit-board

All external cavity walls and their integral insulation are built up to the underside of the plywood subdeck of the insulating "warm-deck" roof to prevent thermal bridging at the roof perimeter.

 Polythene cavity-tray incorporated into the mortar coursing of the two masonry leaves over the lintel as shown, with weep-holes/vents for drainage and cavity ventilation built into the blockwork perpends at 450mm or 630mm depending on length of blocks used. Note that the lintel over every opening in cavity-work should carry at least two weep-holes/vents. irrespective of the composition of the outer leaf.

232mm-high Catnic CX90/100 open-back lintel or an equivalent over a bi-fold door opening up to 4.5m wide. The bottom of the external cement render panel over the lintel is shown finished with a galvanised or stainless steel "bell-end" bead.

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Support Services

of proposed single-storey rear extension.

50x200mm C24-grade

roof-joists at 400mm c/c.

Rear 50x100mm

wall-plate.

GRP (fibreglass) or hot-bonded built-up

Broken line shows depth

(See notes on roof-joist

of side wall-plates.

Infill timbers secured in the webs of the steels by

M12 threaded bar, and extending clear of the steel

bottom flanges to carry face-fixed nailed hangers.

adjustable joist-hangers, secured with 20 no face-

bedroom underslung beneath the steels as shown.

Single- and double ply 50mm-wide hangers will

be required if the overlap of the existing and new

timbers is to be carried by the inner line of hangers.

The drawing shows an underslung 125mm-deep joist

Use Simpson Strong-Tie JHA270 or JHA450

fixed 3.5x30mm square twist nails per hanger

as stipulated by the manufacturer, to carry the

new and existing ceiling-joists of the proposed

felt weather surface of new roof.

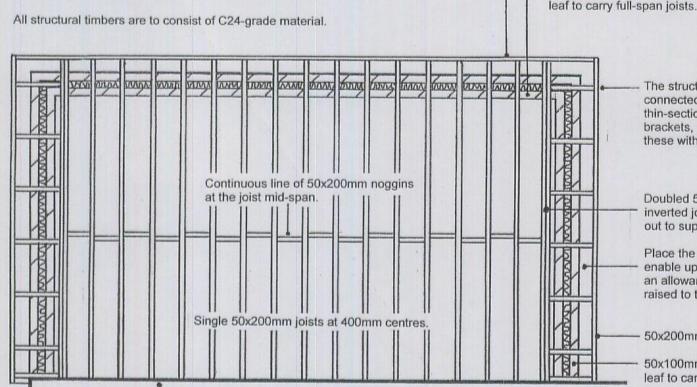
Polythene vapour-barrier

Through-wall side timbers

spaced 640-650mm apart

to underside of joists

where possible.



1:50-scale joist plan for roof of proposed

single-storey rear extension.

two possible type of hanger:

nails throughout

The structural timber facias and the through-wall timbers carrying them are to be connected throughout to the ends of the supporting members with galvanised thin-section steel secondary fixings such as framing anchors, other angled 90° brackets, or external strapping, to prevent long-term displacement. Secure these with the twist- or ring-shank nails stipulated by the manufacturer.

Doubled 50x200mm joists positioned just inside the flank walls with pre-fixed inverted joist-hangers to carry the ends of through-wall timbers that will cantilever out to support the side facias some 200-250mm beyond the masonry.

Place the through-wall timbers 640-650mm apart where possible as shown, to enable up to a full-length 620mm aircrete block to be inserted in each space with an allowance for mortar perpends when the external walls are subsequently raised to the level of the "warm-deck" roof insulation.

50x200mm structural side facia

- 50x200mm structural rear facia.

maintain the rigidity of both masonry leaves.

50x100mm wall-plate over inner blockwork

50x100mm wall-plate over outer blockwork leaf to carry side facias.

1:10-scale detail of new steels and joists over the ceiling of the new Bedroom 4.

Plasterboard ceiling.

2 no 178x102x19 UB's, connected together with M12 bolts or threaded bar in tubular steel spacer sleeves, installed over the existing First-Floor ceiling level to support the top section of the cavity wall over the east side of the existing Bathroom and Kitchen. The steels are to be pre-drilled with matching holes at regular 600mm centres top and bottom as shown, to be used alternately for the staggered bolting of the tubular spacers and the infill timbers respectively.

Doubled rafters supporting the inner end of the through-wall timber which cantilevers out to carry the barge-boards and roof overhang.

Existing rear wall of house, off which the inner joist ends are to be carried at 400mm centres on one of

Option 1: Use thick-section joist-hangers cut into the outer blockwork leaf of the presumed cavity-work.

centres, ensuring that these penetrate to the full depth of the outer leaf. Use thin-section hangers such

installed in the "wrap-over" mode for maximum long-term stability and economy of nailing as advised by

as Simpson Strong-Tie JHA450/50's and JHA450/100's to carry the joist ends in conjunction with this

plate, and make full use of the width of the support-plate's top edge to ensure that the hangers are

the manufacturer - i.e., using 8 face-fixed, 4 top-fixed and 6 joist-to-hanger nails, compared with 20

face-fixed and 6 joist-to-hanger nails where top-fixing is not feasible. Employ 3.75x30mm square twist

Note however that the render coat is to be removed at the location of each joist end to enable the

Option 2: Support the new joists off a 75x200mm timber plate secured to the face of the rendered

blocks with Fischer- or Rawlbolt-type expanding fixings or equivalent at max. 600mm staggered

hanger flange to sit directly and fully on the structural masonry.

The several through-wall timbers of each roof-slope, with their vertical axis at 90° to the slope, receive Normal rafter line. their final support from notches cut into both leaves of the gable wall. Thin-section galvanised strapping secondary fixing nailed across the top of \_ the joint and down the rear face of the rafter as an alternative to nailed angle brackets. Nailed angle brackets or framing anchors shown as a secondary Barge-board secured to end of through-wall timber. All timber-to-timber connections are to utilise thin-section galvanised metal secondary fixings such as framing anchors, other angled 90° brackets, or external strapping. Secure these with the twist- or ring-shank nails stipulated by the manufacturer. Approx. 5x30x1200mm galvanised angled restraint strap nailed across three lines of rafters, with its 90° angled end placed tightly Double noggins - one of which supports and against the outer face of the gable wall and provides an attachment for the restraint strap covered here by the render coat. Note that bracing the rafters. the strap sits over its own line of noggins, and that the wall-cavity is filled immediately below the strap with blockwork or timber to

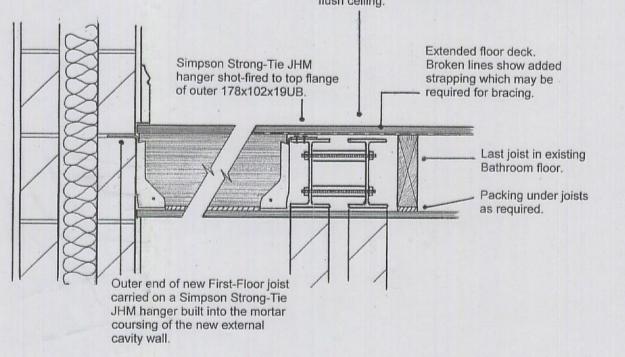
Cavity-work gable wall with an external render coat

Drawing of a proposed arrangement combining new gable-strapping with support for the roof overhang and barge-boards. Not to scale.

Interrupted double (or single) final rafter fixed

to gable wall

2 no 178x102x19 UB's, connected together with M12 bolts or threaded bar in tubular steel spacer sleeves, installed over the existing Ground-Floor ceiling level to support upper sections of the approx. 250mm-thick existing cavity walls over the new Kitchen opening and to carry the new First Floor section over the proposed Kitchen side extension. For clarity the steels are shown mounted on end padstones at the same level as the existing First-Floor joists while also leaving adequate clearance below the First-Floor deck, but if the existing First-Floor joists are shallower than shown it will be necessary to position the steels lower in order to achieve the requisite top clearance - while also packing out the underside of at least the existing joists to a greater extent in order to achieve a new flush ceiling.



1:10-scale detail of new steels and floor over the ceiling of the enlarged Kitchen.

SUPPLEMENTARY DRAWINGS TO ACCOMPANY A PLANNING- & BUILDING REGULATIONS APPLICATION CONCERNING

16, KILNWOOD AVENUE, HOCKLEY, ESSEX, SS5 4PR.

## CLIENTS:

MR AND MRS BUCHANAN.

16, KILNWOOD AVENUE, HOCKLEY, ESSEX, SS5 4PR.

## PROPOSALS:

CONSTRUCT A NEW TWO-STOREY REAR EXTENSION, AND AN ENLARGED SINGLE-STOREY REAR EXTENSION TO REPLACE THE EXISTING REAR SUN-LOUNGE.

## AGENT:

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