

the £50k house

the 50k house isn't a design problem, it's a procurement problem - building a house on a tight budget demands easy to organise packages of work, simple construction and a combination of the best of both on-site and off-site techniques to ensure fixed prices and predictable program - we believe the single storey house has an important role to play in the future of UK housing and is ideally suited to self-build skills...

self-build on a shoestring



central MVHR install to reduce costs

opposing tread stair to study + storage

1st floor study + storage

possibility to extend at either end of plot in future

entrance courtyard provides daylight to deep plan

section

competition site

alternative street layouts

on or off street parking optional

build program

MVHR installation using minimal ducting

complete enclosure and external cladding

internal walls and fit out completed by self-builder

plumbing/heating system fixed efficiently using CNC routed pattern board wall for guidance

pre-insulated 'Smartroof' cassettes

pre-insulated wall panels

pre-fab floor, walls and roof craned into place to complete water tight structure - constructed off-site during groundworks period

suspended floor filled with blown insulation once watertight

self-builder lays single storey thin joint 'Porotherm' clay block system

dig 4 trench fill foundations + drainage

1. self-build: groundworks

2. self-build: masonry walls

3. pre-fabricated: timber frame - fixed price install to watertight

4. project manage: services install

5. self-build: internal fit-out

Living/Dining A: 25.7 m²

Kitchen A: 6.5 m²

bathroom A: 3.0 m²

circulation A: 5.4 m²

services A: 0.9 m²

WC A: 2.0 m²

Bed 1 A: 12.0 m²

Bed 2 A: 10.0 m²

layout 1:50

elevations 1:200

Works Package	Construction Element	Materials	Labour	Total
Works Package 1	Set up, Clearance, Demolitions....	£ 2,080.00	£ -	£ 2,080.00
Works Package 2	Foundations (up to DPC)	£ 2,937.00	£ -	£ 2,937.00
Works Package 3	Ground Floor Slab or Suspended Floor	£ 4,125.00	£ -	£ 4,125.00
Works Package 4	Drainage & Service Trenchwork	£ 1,000.00	£ -	£ 1,000.00
Works Package 5	Specialist Building System (eg timber frame, SIPs, etc if applicable)	£ 5,941.00	£ 2,375.00	£ 8,316.00
Works Package 6	External & Internal Walls	£ 5,235.00		£ 5,235.00
Works Package 7	Intermediate Floor Zone (if applicable)	£ 1,520.00	£ -	£ 1,520.00
Works Package 8	Fireplace & Chimney (if applicable)	£ 750.00	£ -	£ 750.00
Works Package 9	Roof Structure, Insulation & Covering	£ 4,950.00	£ -	£ 4,950.00
Works Package 10	Joinery (Windows, doors, stairs, skirtings...)	£ 2,800.00	£ 950.00	£ 3,750.00
Works Package 11	Specialist Products (eg; Eco products...)	£ 1,500.00	£ 500.00	£ 2,000.00
Works Package 12	Electrical Installation	£ 750.00	£ 900.00	£ 1,650.00
Works Package 13	Plumbing Installation	£ 800.00	£ 700.00	£ 1,500.00
Works Package 14	Heating Installation	£ 1,750.00	£ 1,250.00	£ 3,000.00
Works Package 15	Plastering (or dry-lining)	£ 625.00	£ 2,000.00	£ 2,625.00
Works Package 16	Kitchen and Utility Units (+ appliances)	£ 2,500.00	£ -	£ 2,500.00
Works Package 17	Decorations & Wall Ceramics	£ 500.00	£ -	£ 500.00
Works Package 18	Floor Finishes	£ 1,500.00	£ -	£ 1,500.00
	TOTAL	£ 41,263.00	£ 8,675.00	£ 49,938.00



A Cost Report **must** be provided alongside your design proposals. Please use this Excel spreadsheet to summarise your estimated cost and provide this as the **first** sheet of your report.

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Introduction:

Single storey, modern methods of construction and easy to manage packages of work.

Our proposal is designed to consider carefully the benefits of combining simple on-site construction processes that could be undertaken by an enthusiastic self-builder alongside the price and performance certainty delivered by off-site prefabrication. We have chosen to explore a single storey house typology. Although this decision brings greater challenges with both the energy performance and ground works, we believe that the benefits to living quality, adaptability and ease of construction make the bungalow a worthwhile investment.

One of the greatest challenges for a self-builder is the day to day management of material delivery, storage and plant and equipment required to control health and safety issues of working at height. Using modern methods of construction we aim to provide a large water tight space quickly that allows the self-builder to proceed in a more easily managed process internally. By overlapping ground floor construction and off-site manufacture the initial program of works can be completed quickly with certainty over fixed prices for the bulk of the superstructure. Items of joinery such as stairs and service walls are intended to be designed and manufactured following a pattern that can be repeated cost effectively using CNC routing technology. The prices stated for the pre-fabricated timber frame also assume a standardised panel size that can be called off by self-builders following a common house type plan. The layout of the design has been developed such that it can be mirrored or handed in various ways to suit orientation without changing the fundamental construction dimensions.

Once the superstructure is complete the interior can be fitted out easily thanks to the efficient arrangement of plumbing and heating layouts that will require minimum labour and material to commission and avoid potential for delays and unforeseen costs thanks to colliding orders of trade.

The central service zone contributes not only to the ease of construction but also the ability to extend easily in future at either end of the building or into the entrance porch, without major alterations to mechanical and electrical layouts. The installation of an MVHR unit in the centre of the plan also reduces complex duct runs and maximises efficiency of performance.

Open plan living places the kitchen at the heart of the house. Our courtyard entrance strategy provides daylight to the centre of the plan and creates a useful external storage area. By completing the roof in pre-insulated panels the higher levels of the pitched roof can be left open above living spaces and enclosed over bedroom areas to provide ample storage.

We believe this is a house that future self-build families could be encouraged to undertake and project manage their own construction when offered a design that is easy to imagine and plan the work required, both in scale and order of trades.

The following notes on costs are based on a combination of specific quotes developed with key suppliers for the superstructure, with general rates applied per m² taken from guidance in BCIS. Much of the process is assumed as traditional self-build to reduce labour with additional costs allowed for items such as the erection of the timber frame and specialist items such as electrical installations. Performance specification is set at above building regulations standard due to a fabric-first approach to air tightness and heat recovery ventilation. We estimate that Passivhaus levels of insulation and glazing could be achieved with an increase of approximately 10% - 15% using the same methodology.

Cost notes:

WP1: Set up

Allowed for 4no. builders skips, single lift of scaffold with tables at ridge, hiring of digger for 1 week to undertake ground works.

Other equipment costs would also be required in this total such as tools, lifting equipment and tower scaffold for internal access but we have assumed access to basic tools and the future re-sell of other items via services such as eBay.

WP2: Foundations

Excavation and concrete to 4 no. straight trench fill foundations of equal size. Also includes geotextile membrane and gravel cover for areas to be covered later by suspended floor.

WP3: Suspended floor

Pre-fabricated cassettes constructed using metal web joists and craned onto bearers fixed to Purotherm walls.

- £30/m² for pre-fab cassette
- £8/m² for chipboard deck
- £17/m² for Warmcel blown insulation (ground floor only)

WP4: Drainage trenchwork

Short drainage connections from single location in centre of plan

WP5: Specialist building system

Pre-fabricated walls and roof trusses quote provided by supplier includes:

- £45/m² for roof cassettes and 1st floor wall panels (rising to £75 for Passivhaus level option)
- 2 man construction team at £375 per day over 5 days
- Crane hire for 1 day at £500

WP6: External & Internal walls

Ground floor external walls are constructed by self-builder using thin-joint Purotherm clay block system ensuring ease of laying and accuracy. Material costs only allowed. Completion of central timber walls on-site also included, measured as slightly reduced cost compared to off-site panels. Internal walls measured at basic cost per linear from BCIS.

- £60/m² for Purotherm clay block
- £35/m² per linear metre for on-site constructed timber walls (constructed on ground and manually lifted)
- £28/m² for cement board Marley Eternit Profile 3
- £15/m² for plain cement board painted on site

WP7: Intermediate floor zone

Pre-fab cassette – see WP5 for rates

WP8: Fireplace

Single storey chimney – lightweight cladding around wood burning stove flue completed by self-builder

WP9: Roof structure, insulation and covering

- £225 per truss for 2 no. internal trusses
- £750 per truss for 2 no insulated external wall panels/trusses
- £30/m2 for cement board Marley Eternit Profile 3 covering plus additional trims

WP10: Joinery

General joinery assumption using mid-range of BCIS recommendation per m2 at £50/m2 assuming cost saving through the use of CNC routed stairs and service wall.

WP11: Specialist products

Airflow MVHR system at minimal estimated cost due to very short duct runs and easy to install semi-rigid ducts allowing self-builder to install.

WP12: Electrical installation

General assumption of material and labour at £22/m2 using low range from BCIS due to simple layout design

WP13: Plumbing installation

General assumption of material and labour at £20/m2 using low range from BCIS due to simple layout design

WP14: Heating installation

General assumption of material and labour at £40/m2 using low range from BCIS due to simple layout design

WP15: Plastering

General assumption of material and labour at £35/m2 using low range from BCIS assumes use of items such as Fermacell recycled board to reduce wet trades.

WP16: Kitchen

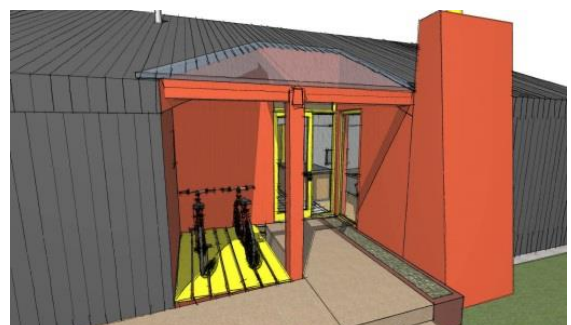
Estimate of possible kitchen cost using examples from suppliers such as Ikea and ex-display options available via eBay.

WP17: Decoration

Material only.

WP18: Floor finishes

Assumed £20/m2 – material only.



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