

A Client's Own Successful "Hands-ON" Project!

“Save, Then Save Again!”

Location: *Rural Norfolk (UK)*

For DIY (Hands-ON) enthusiasts; this project shows how easily people can venture into the "unknown" and use the ProFrame® method to carry things through to a very successful conclusion!

The clients wanted to design a house that would suit their needs and allow them to use as environmentally and ecologically-friendly construction as far as possible. However; they also wanted to minimize the cost involved undertaking the project; through a mix of good design, practical methods of construction and the removal of all unnecessary use of sub-contractors.

The project had to overcome various practical and planning constraints before the project could finally go ahead.

The planners were insistent upon the new house "blending" in with the existing houses either side of the plot; despite an acknowledged lack of any architectural merit; whilst the site investigation soon revealed why such a "generous" side garden had been left between two houses when an otherwise consistently spaced row of semi-detached houses were built! The natural pond at the rear of the plot wasn't the problem; it was a 'filled-in' former village pond at the front of the plot together with a substantial layer of general filling over most of the rest of the site that caused the need for "piled" foundations!

- Fortunately; the existence of the 'filled-in' former village pond and the assumed need for an expensive reinforced concrete 'raft' foundation to support any new house built on the site meant that the purchase of the plot was relatively cheap - saving a substantial amount compared to the cost of buying any 'normal' building plot in the area!

Having acquired a 'cheap' building plot; all that the clients needed was some way of building a house that was equally 'cheap'; in order to be able to create a very successful, low-cost, 'self-build' project! Having bought a copy of the "An Insider's Design Guide"; written and published by the 'Self-Build-Pro' in 2002 and subsequently updated in 2008; what they read convinced them that they could confidently expect to achieve that objective!

- Using many of the design ideas suggested in the "An Insider's Design Guide"; the clients formulated a 'rough design' for their proposed house before they contacted us. They had also decided how they intended, with our help, to reduce 'build' costs by (a) having the kitchen, dining and lounge rooms laid out in an 'open-plan' arrangement, (b) increasing insulation levels to remove the need to install a central heating system and (c) tackling the majority of the 'build' as a 'DIY' (Hands-ON) self-build project.

The 'key' to success was that our ProFrame® system for the design and construction of the house substantially reduces the 'design-loads' carried by the foundations; leading to fewer and shorter piles being required. Using our ProFrame® 'bespoke' timber-frame design software also meant the house didn't require load-bearing internal walls; that, in turn, allowed the use of a (cheap) reinforced concrete "ring-beam" under the external walls; instead of the usual heavy-duty (expensive) rigid "raft" foundation that they had happily allowed the Vendor to assume would be needed in order to buy the plot for a 'knock-down' price!



The scene of the "filled-in" pond and old watercourse - note the "willow tree" clue! However the whole area had also been built up with soil 'fill' material as well; leading to the need for piling and a self-supporting floor construction!



The piling is completed and the "plastic" shuttering is already in place around the steel reinforcement "cages" ready for the concrete ground beams to be cast!



The position of the front porch and chimney base can be clearly seen above. The chimney base proved invaluable for creating the very economical "double-span" ground floor construction shown in the two pictures at the top of the next page!

The client followed our advice about what building work he could feasibly tackle himself and what he should simply sub-contract out.

- The basic foundation work; comprising the piling and "ring-beam"; was sub-contracted out to a specialist contractor - working to our design loadings and ring-beam design. Naturally; we ensured that the work was carried out properly and guaranteed by an insurance-backed warranty.

The client opted to build the rest of the substructure upto d.p.c. level and lay the internal drainage under the house himself; before subsequently 'taking on' a school-leaver as his "trainee carpenter" to assist him with building the timber-framed superstructure of the house; also arranging for him to attend college as a 'day-release' student to study for his NVQ's in carpentry!

- The next work that was to be sub-contracted out was the facing brickwork, followed by the roof tiling.

Allowing our client to get on with internal wall-framing; external wall insulation; 1st fixing the electrics and plumbing, etc. ready for the dry-lining.



As mentioned; the foundation walls were client-built upto DPC. Then he cut and fitted the timber anchor-plate ready for the floor joists. The detailed work around the chimney base is quite impressive for a novice self-builder's first project!



The floor sheathing's done and ground floor wall panels are well on the way, extending right across the front and down one side ~ halfway to completing the full enclosure! There's 200 mm of insulation between floor joists; hence the polythene!



Upon our recommendation; the ground floor window openings will be left covered by the plywood sheathing; until ready to insert the windows; as a security measure. Note the next wall-panel framed and ready to receive the plywood sheathing ~ and the 'temporary braces' holding the exposed ends of the two walls!



Ground floor wall-panels completed; 1st floor joists framed up, but still retaining some braces on the longer wall lengths until the floor sheathing is laid!

Looking like a "blockhouse" from the outside.

There's no need for scaffolding as all the 1st floor wall-panels are being framed and erected on the 1st floor deck! The client opted not to bother with "guard-rails" but the timber 'stop-blocks' (to prevent wall-panels sliding over the edge during erection) can be clearly seen.



Apart from attaching the breather-membrane; the 1st floor wall-panels repeat the ground floor erection process! The window openings aren't sheathed under the breather-membrane as making a secure "enclosure" isn't necessary at 1st floor level.

(It also avoids the need for any external scaffolding whilst getting the house erected and weather-tight!)



Ground floor breather-membranes can be attached quite easily without scaffolding - so that will be done after the timber-frame and roof carcassing is completed and the house has been made weather-tight!



With 1st floor wall-panels completed, the "blockhouse" effect is even more obvious! Roof trusses for the hipped roof are going up quickly now using adjustable trestles to provide a working platform just below ceiling tie level.

(NB: Using the ProFrame[®] design system - NO lifting gear is needed for erecting the roof trusses; despite being two storeys above ground-level!)



These two internal views also show two of only three openings (out of twenty-three in all) that actually required "lintels" using the ProFrame[®] system - saving time and money!

(Normally; timber frame designs require lintels over every opening in load-bearing walls that carry either floor or roof loads!)



The lack of "lintels" also reduces the weight of the wall-panels; especially at the top; thereby making it easier to erect them if working single-handed as the ProFrame[®] system is designed to allow for!



A fine sunny day sees the same front view (left) as seen on the previous page (middle-left) while the rear view is seen right. The breather-membrane is finished; window openings are visible; and the brickwork is proceeding. Windows should have been in but the "brickies" arrived first! The roof is nearly ready for fascia-boards to be fitted.

The client elected to wait until the "brickies" finished before closing in the roof ~ the weather was good and he simply carried on doing the internal wall framing and 1st. fix wiring instead!



The "Anki" chimney system above the fireplace is designed to be totally freestanding; which makes it ideal for timber-frame houses.

The flue blocks are just 390 mm square (about 15") so they are slender enough to pass through both floor and roof timbers without needing to cut and/or trim timbers around the chimney!

The facing brickwork to the chimney stack exposed above the roof-line is built off an integral 'corbel' slab sited just below the rafters.



Due to the high insulation values; the clients didn't need to install a "central heating" system; opting instead for a centralised source of heat for when the weather was particularly cold in the form of a "Hunter" room-heater and boiler sited in the open fireplace of the open-plan living area.

As the staircase goes up to the 1st floor directly from the 'open-plan' living area; it will effectively provide heat for the whole house!



Brick cladding completed and roof tiling well advanced. Windows are fitted although the large "French" doors at rear of living room cannot be fitted until the scaffolding is removed!

The smaller window sizes at the front of the house were chosen to prevent rooms overheating due to solar gain from the evening sunshine!

The story continues . . .

