CREATING SPACE...

BY REMOVING WALLS AND CHIMNEYS!

Mark Doyle

Mark is a Chartered Engineer who moved into property full time following a serious rugby injury in 1996. Landlords and investors since 1991, he and his wife Claire have well over 20 years of experience in buy-to-lets (BTLs), Houses in Multiple Occupation (HMOs), developments, and conversions into flats and houses. They typically work on properties in very poor condition.

Maximising floor space or square meterage is a goal for investors and developers: it can make a property more ascetically appealing, helps to meet legal requirements (eg in HMOs) and adds quantifiable value. As a general rule, most of us accept that unless the property is really old or has a particular character, then the more open plan and spacious a property feels the better.

WASTED SPACE

The average House Price in UK now
over £222,000
(Halifax Index)
and £207,000
(Nationwide Index)

Most properties built throughout Britain since the mid-1970s maximise their site footprint and internal space. Prior to this, properties commonly had one or more of the following: **basements** (a room) and **cellars** (storage space), **back boilers**, **built-in cupboards**, **high lofts**, **large alcoves**, **lean-to's**, **pantries**, **inner hallways**, **separate toilets and bathrooms**, **smaller divided rooms**, **standalone garages**, **floor voids**, **under-stairs space**, **warm air heating systems** and **various 'nooks and crannies'**.

All this under-utilised space could be in excess of 10%-20% of the existing available floor space (so for an average UK house valued at over £200,000, although simplistic, this could be worth an additional ca £20,000-£40,000). Freeing up this space will add a further cost to the project, but it may well be worth it. In the first case study below, opening up a wall at a real cost of about £1,000 to create a lounge, effectively freed up a reception room in a HMO. This reception room became a bedroom rented out at £100 pw or £5,200 pa gross, equating to a 520% return on investment.

WALLS

Wall construction includes timber, wattle and daub, solid masonry, steel reinforced concrete, cavity brick and SIP's (Structural Insulated Panels, see www.sips.org). Pretty much all walls can be removed to create space, for a cost. There are two key questions though: is the wall load bearing and/or does it provide support for and joins a party wall? In other words, is the wall supporting something above or is it providing a 'live load' bracing support for a party wall (**see case study in Lancashire**)? It's crucial to check whether even lightweight walls will be fine if removed, and make sure you agree with what a builder is telling you. If you are truly not sure, get a second opinion: go and speak to a professional. In many cases, walls can simply be removed, however in others, lintels or steel I-beams will need to be inserted using acrow props prior to removal.

The Party Wall Act 1996: applies whenever you want to undertake work on or close to a neighbour's boundary. Examples of work that may require a party wall boundary survey and a requirement for you to serve a statutory notice on an 'adjoining owner' are given below;

- **changes to an existing structure (eg cutting in a lintel into a party wall)**
- **the removal of a chimney from a party wall**
- **excavation adjacent to or below any neighbouring foundations**

If this work applies to you, you will need a consultant surveyor who specialises in party walls to assist you. An agreement may need to be reached between the various parties and a range of survey and monitoring measures installed. (***See Graham Kinnear's column this month for more on the subject of party walls.***)

www.gov.uk/party-walls-building-works/work-tell-your-neighbour-about

CASE STUDY:
CHESHIRE

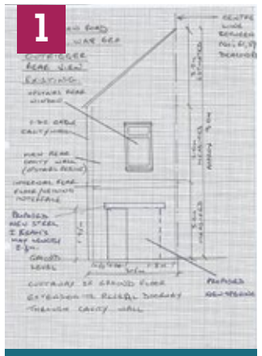
Three-bedroom Victorian terrace (approx, 90m²), converted to a five-bedroom (all en-suite) HMO with new 12m² lounge, created by knocking through rear main cavity wall of the pantry into a Victorian single skin lean-to at the rear (see photos 1 to 6).

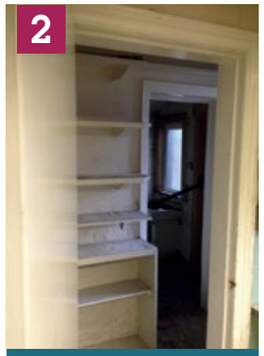
As this project was refinanced onto a commercial mortgage, all certificates and building regulations completion certificates were needed. A structural engineer was retained to determine load carrying capacity needed, and to make recommendation for type and size of steel (see photo 1 for site sketch).

The work itself was undertaken in accordance with the structural engineer's recommendations.

The building control officer approved the steel and the works prior to fire-lining and issued a certificate on completion of the works.

The structural engineer's report and building control completion certificate were all submitted with the commercial mortgage application.


1
Structural engineer's design detail, taking account of the weight of masonry and live loading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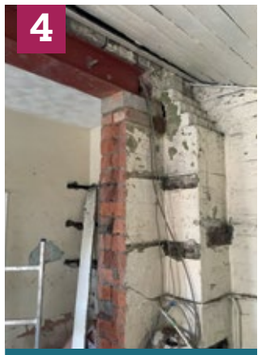
Original view from kitchen through pantry


3
Steel lintel pair, bolted together below rear cavity wall & sat on pad-stones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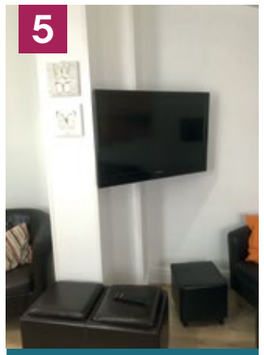
Steel lintel and adjacent back-to-back party wall 'S' shaped chimney.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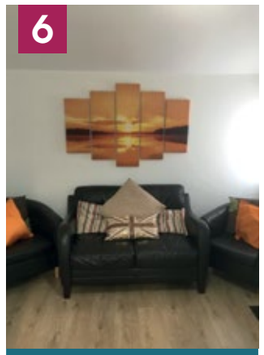
Old lean-to, studded, insulated, vented, plaster-boarded and skimmed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Lounge furnished

LINTELS (AND BEAMS)

The choice of lintel is dependent on the width of the opening, masonry construction type and the load support needed. Lintels can be concrete or steel and come in a variety of shapes but are usually rectangular or angular or box in section.

Lintels have basic rules for use, in that they should sit on a pad-stone (ie dense blocks) at either end overlapping by at least 150mm (**see photos 3 and 4**). If they are external to a property they should be made from concrete, while internal lintels can be either concrete or steel (but not wood or brick!).

CHIMNEYS

Older properties had a fireplace and chimney in pretty much every room, of varying size, shape and construction often with a cupboard built into the alcove, and all taking up floor space. Chimneys are a key structural element of a building and they can be placed almost anywhere in a property but are usually in the middle of an external gable wall (**see photo 7**) or against a party wall (see **notes on The Party Wall Act**).

To remove a chimney, it's best to remove the whole structure from the top down brick by brick, infilling, strengthening and repairing the wall behind as you drop down (**see photos 9, 10 and 11**). Chimneys are usually constructed 'back to back' and if separation between flues is damaged, carbon monoxide poisoning could result from the neighbour's flues (**see photos 8, 14, and 15**).

Hanging chimneys are found when they have been removed at a lower level, but still remain higher up, often left poorly supported (**see photos 8 and 15**). In the past 'gallows brackets' (**see photo 9**) were widely used to support chimney remnants in the roof void, but many developed weak joints and the walls they were bolted into proved too weak. Although they are still used, on old property the insertion of lintels and steel beams into a wall is now the preferred method of support.

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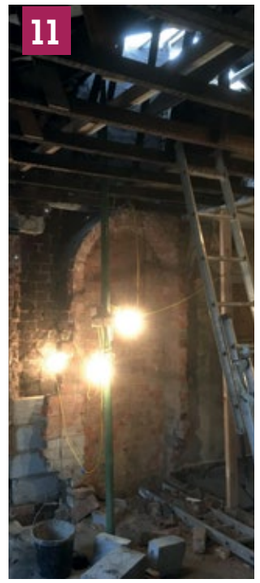
7


8


10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12

CASE STUDY: MERSEYSIDE

Commercial conversion of an old building with offices, trade counter and warehouse, to separate flats.

The building was built ca 1840 and had issues with instability, wooden and brick lintels, the remains of eight chimney flues and hanging chimneys. The property needed advance works to render it safe and to optimise floor space chimneys, and stacks were removed to maximise rooms and allow new kitchens (**see photo 12**) to be fitted flush against external walls.

- **This project was re-financed onto a commercial mortgage, all certificates and building regulations completion certificates were needed. A structural engineer was invited to site for a meeting with the building control officer (BCO) to discuss chimney removal. Following a verbal discussion on site and confirmation email) of what was needed, the BCO was satisfied and agreed he would sign off the works.**
- **The work itself was undertaken in accordance with the structural engineer's recommendations and inspected by the BCO.**
- **The building control officer was provided with a memory stick of photos. The works were approved and a certificate of completion was issued for the project.**

The structural engineer's email and the building control completion certificate were all submitted with the commercial mortgage application.

GETTING IT WRONG & BRAVADO!

Knocking out walls and chimneys is a simple thing to do but it's also easy to get it wrong and over the years most of us have seen poor examples. When it comes to gravity, the laws of physics will eventually pull down a weak lintel or a badly supported hanging chimney (**see the third case study**).

Confidence in what you do and having the knowledge that what you're doing is correct, are two different things. If you are really not sure about any structural and layout changes proposed for your property, then get advice. This is not a time for 'bravado' and not one of those times when you can simply wing it, but done correctly, it can add thousands to the value of your project!

CASE STUDY:
LANCASHIRE

Georgian Grade II listed four-storey brick terrace in conservation area.

This property had received various permissions including 'conditionally approved building regulations' for proposed works. Unfortunately work had been undertaken without any formal supervision or guidance (let alone a building inspector's approval). This project had been left with a four-storey 'party wall' with an adjacent listed property that had not been secured, a single course of brickwork at the rear of the exposed flues, floors and ceilings with no support, a large hanging chimney in the roof void, very large original timber unsupported roof purlins and a very old slightly precarious badly repaired chimney (estimated weight over two tons) balanced on the roof (**see photos 13 to 16**)!


13
The remains of the original 200-year-old baker's oven in the Basement. Oven and all original features removed


14
First floor. Two chimney flues clearly visible on first floor against party wall. No support for floor or ceiling. Original fireplaces and hearths all removed


15
The remains of the original 200-year-old baker's oven in the Basement. Oven and all original features removed


16
Historically badly extended and repaired chimney stack on roof with party wall boundary clearly visible

CONTACT DETAILS

Mark is happy to chat or coach anyone who may need some assistance and can be contacted at: **mark@cheshlancs.co.uk** or **www.cheshlancs.co.uk**