

When less is more

Chris Mahony looks at some modern methods of construction and discusses the benefits of thin joint mortar systems

The construction industry is amid a huge change in the way it designs and delivers buildings. Methods are constantly sought that can speed up the process, yet at the same time maintain high levels of quality and site safety. It is no surprise therefore that off-site production has increased, together with a growing awareness of better on-site techniques and products.

Off-site manufacture

There are numerous advantages in manufacturing off site, the most obvious being the fact that production can take place in a dry environment all year round. Other benefits are accurate setting out, speed of production, quality control, economies of scale, and of course safety.

Other innovative techniques are now being used on site. These include prefabricated timber joists and hangers, various sound proofing systems and linings, wiring looms, system-fit boilers and hot water tanks, pre-hung doors and frames complete with ironmongery and thin bed mortar.

Thin bed mortar

The specification and use of thin bed mortar systems has increased in recent years, especially as its correct use can help to reduce thermal loss through the external wall by reducing the thickness of the mortar bed.

Traditional mortar beds are usually around 10mm deep both for bricks and blocks, and bricklayers ensure that the mortar has "gone off" before applying significant loads like joists or lintols. Thin bed mortar however can be laid as thin as 3mm, and can set in 30 minutes. Its use with lighter aircrete blocks (autoclaved

aerated concrete) is popular. For the developer, the system brings added benefit in the form of larger blocks, which means less time on site and improved thermal resistance.

For the surveyor, there are several aspects to note:

- As the tolerances are less, it is critical that the base course is level. As there is less scope to level out inconsistencies with thin beds, the first one must be correct.
- It is difficult to bed a DPC in a 3mm bed course. The use of traditional blocks to start the wall is therefore a good alternative, and helps to provide a level starter course.
- The on-site mix with water should be carefully measured.
- The accuracy of vertical joints is important. Blocks should be cut with a saw, especially around openings.
- Bricklayers should be trained and understand the system, as the mortar and its application differs from traditional methods. The mortar is not applied with a conventional trowel but with a special applicator, serrated scoop or notched trowel, leading to less waste and a reduced risk of mortar being squeezed into the cavity and onto wall ties or insulation.
- Traditional wall ties may not line up with the outer leaf. Instead alternative methods are applied using proprietary products or the technique is used on both the inner and outer leaf.
- Movement joints should be incorporated when necessary, as can bed reinforcement which can help to reduce shrinkage cracking, especially around openings.

- The mass of light weight blocks is low, so sound insulation and transmission needs careful detailing.
- Once plastered or dry lined, you cannot tell if the wall is built using a thin bed system. An inspection of the roof void or plant rooms may reveal all.

Will its use continue? Yes. Like all new techniques however, it takes a little time for us to become aware of them and to correctly specify and recognise them.

Surveyors beware

With regard to off-site production, the surveyor needs to proceed with caution. Timber framed housing and the use of brick slips is often difficult to initially diagnose. Correct identification, perhaps from the health and safety file, should result in the correct diagnosis of construction, and in turn alert the surveyor to associated and known defects. It's true that we need to know a lot more about this form of construction, and where possible failures are likely to occur.

A whole host of other considerations must also be taken into account, depending on the scope of the surveyor's instruction. These might include considering the practicalities of repair or future replacement of panels, reinstatement valuation, available warranties, life expectancy, open market valuation and insurance. To the surveyor undertaking an appraisal of the building, alternative future use and ease of conversion will also be high on the list.

Chris Mahony

Director, Church Lukas and chairman of the RICS Building Pathology Working Group