

FAQs

Constructors - Designers - Specifiers

1. Are Offsite Construction techniques and MMC more expensive than traditional?

NO

- **Initial build costs**

Many client's agents who act for Housing Associations are now able to confirm that out-turn costs for affordable housing projects, built using offsite techniques and MMC are between 5 and 15% lower than traditional building methods. These figures do not take into account the additional savings in terms of capital utilisation through shorter building programmes.

When quantity surveyors compare costs on an element by element basis, MMC may appear to be marginally more expensive than traditional build. However, when reduced prelims, site accommodation costs, savings in the ground etc. are taken into account, the costs are favourable. In addition there are cost benefits that accrue from reduced call backs for remedials as cracking due to settlement / drying out is rare. Quicker completion can result in reduced financial outlay and quicker return on investment.

Member companies have won several long-term development frameworks because they have been able to demonstrate their cost efficiencies over traditional build methods. Out-turn costs for projects have confirmed that fit out in the factory is more economic than fit out on site.

There are many projects where MMC demonstrate value for money and save the client costs when compared with traditional build. These highly successful projects tend to realise the attributes of speed, risk management, standards and reduced remedials. The recent completion of Phase 1 of Colchester Garrison for the MOD, three months ahead of programme, with snagging complete and handed over to the satisfaction of all parties, demonstrates these attributes.

Offsite construction using light steel framing is still in its infancy in terms of its cost competitiveness. Currently costs are comparable with other materials, but the real potential of offsite technology in terms of reduced costs will be optimised with substantial market growth. When the demand is sufficiently high, suppliers will increase investments in R&D and IT Systems and this will lead to greater flexibility in design and manufacture. To some extent, as with the motor industry, efficient mass customization will overcome the limiting volume / cost factors

The Cyril Sweet report 'Kingspan Off-site: Architectural Façade Benchmark Study' illustrates that having allowed for initial cost differentials, substantial potential cost savings can result. There are also intangible savings due to:

- i. No wet trades required
- ii. No waste materials on site
- iii. Reduced storage by 'just in time' delivery
- iv. Weather proof building envelope achieved quicker
- v. Reduced labour numbers and skills
- vi. Dimensional accuracy achieves high quality of finish

NB: These findings are confirmed by NAO report 'Using modern methods of construction to build homes more quickly and efficiently and the Barker 33 Cross-Industry Group report 'Analysis of Barriers to the greater use of MMC in the provision of new mixed tenure housing'

- **Overall value for money (running and maintenance costs)**

Barratt conducted a limited but controlled experiment with like users in identical house plans built using different forms of construction. The results demonstrated that light steel framing produced lower household running costs and greater comfort to the user.

Another client has just completed an independent assessment which shows that running costs for a 2 bedroom apartment built using volumetric construction are an average of £5 per week less than a similar apartment built using traditional methods.

- **Peripheral savings**

In addition, because of the way they are insulated, light steel frame properties heat up quicker in winter than those built in traditionally materials, in summer they cool down quicker when naturally ventilated.

2. What are the sustainability credentials of light steel framing in construction and use?

These are many and various:

In construction:

- less vehicle movements (to / from workplace and site; fewer deliveries)
- less wastage (material in a factory environment can be better controlled)
- improved recycling of waste
- increased productivity / efficiency
- fewer accidents
- programme predictability
- rapid installation
- dry construction
- lightweight
- easy to dismantle and reuse/recycle
- zero-energy construction is possible

In use:

- lower maintenance
- good robustness
- good life expectancy
- lower energy bills (a typical 2-storey light steel house consumes 30% less energy than traditional construction)
- embodied energy in materials corresponds to just 2-3 years of operational energy

3. What is the expected life span of Cold Rolled for Housing?

The life span of cold formed steel in warm frame construction is well in excess of 60 years. Warm frame construction is where the lightweight steel is enveloped in thermal insulation such that the dew point falls outside of the frame and hence minimises the risk of condensation forming on the frame. For best practice and support evidence refer to SCI publication P262: 'Durability of Light Steel Framing in Residential Building'. (add hyperlink to SCI publication via steelbiz.org)

The third party certificates held by SHG members include an assessment of durability.

4. Will a project be built quicker than with traditional methods?

YES, volumetric system build projects have shown reductions of up to 60% in overall build time and efficiencies and savings in labour and energy.

The Cyril Sweett report 'Kingspan Off-site: Architectural Façade Benchmark Study' illustrates that architectural facades built off-site can be installed in 65% of the time required for stick built systems and 40% of the time required for blockwork systems.

Offsite technology and MMC have all the attributes to be constructed quickly but whether this attribute is valuable to the developer depends on the characteristics of the development and whether private sales or RSLs are the end clients. There is a tendency for the private sector to build out projects progressively as sales are confirmed rather than construct a development on a continuous basis. In this case, speed is of limited value.

Apartment schemes are particularly suitable for LSF as due to quicker build the first dwelling is available for occupation earlier than in traditional build as the structure is water tight earlier which allows earlier access for follow on trades.

The SCI, funded by the DTI and Corus, has carried out an in-depth study of several construction sites involving various levels of off-site techniques. The findings of the SCI study support the widely-held view that off-site construction is significantly faster than traditional construction. This was an important factor in the construction of 3 schools in Crawley, West Sussex. These schools had to be built to a tight timescale; in one case this meant slashing the programme from 76 to 54 weeks. This represents a 29% reduction in the construction period, which agrees well with a time saving of 25% reported by the NAO.

5. Can the structures be easily serviced?

YES, as in all forms of construction, the structure can accommodate all services from power to gas and soil pipes / drainage and ventilation. Studs, floor joists etc can be designed to accommodate service runs. Where early information is provided the number of holes required can be reduced. Where electric cables are located within the frame, care should be taken when drilling into walls.

6. Can LSF structures easily be made air-tight?

YES, test data has shown that the LSF product matches and regularly out performs traditional build although as always results are reliant on close attention to detail and the quality of workmanship on site.