



THE COST OF INFORMATION

Understanding the cost implications of the adoption of OSC ahead of the completion of substantial design work can be a real headache for clients and their advisors. **Simon Rawlinson**, Partner and Head of Cost Research at Davis Langdon LLP, illustrates how accurate early stage advice can be used to support the OSC selection process.

The cost of construction is known for being difficult to forecast and control. Many clients cannot obtain a commitment to the cost of a project until the contractor is appointed, and as a result, many specification decisions are made on the basis of a combination of historic cost information, supply chain feedback and professional judgement. But how do cost managers advise clients on suitable OSC options when this information is less readily available? Is this an area where the industry could do more in presenting business case information to clients?

ESTABLISHING THE COSTS OF OSC

The National Audit Office's recent review of OSC 'Using Modern Methods of Construction to Build Homes More Quickly and More Efficiently', published in 2005, represents a substantial effort by government to address some of the uncertainties that clients experience when deciding whether to go down an OSC route.

The quality of the headline data published by the NAO, detailed in Table 1, reflects difficulties that

exist in establishing high-level benchmark costs. As the benchmark costs become more general, the ability to isolate the scale of any differential between options, or the significance of benefits which might offset the differences becomes much more difficult.

The NAO study is supported by a very detailed analysis carried out by the Building Cost Information Service (BCIAS), which builds up both costs and resource requirements for different dwelling type and build type combinations. The analysis, which backs up to the NAO's general conclusions in the report, illustrates the benefits of detailed cost analysis in support of a client's decision-making.

Clearly the development of a wider range of case studies, which more closely mirror the characteristics of a client's project requirements, will enable the direct evaluation of the costs and wider benefits of OSC solutions.

Readers of OSC will be familiar with the range of benefits of OSC solutions. These benefits are widely credited by the industry as being sufficient to offset initial capital cost premiums. However, there is limited evidence that all of these benefits are secured, and in

evaluating them, the following issues should be considered:

- **Duration** - do the savings in onsite operations contribute to an overall acceleration in the completion of the project? How much earlier will the client need to confirm requirements to secure accelerated completion?
- **Cost** - where the introduction of OSC reduces the scope of conventional trades or main contractor preliminaries can the client secure the full value of the resultant savings? Have all opportunities to secure savings been exploited?
- **Quality** - will the improvement in quality and reduced site snagging associated with OSC elements be sufficient to physically reduce the extent and cost of the contractor's site staffing requirement?
- **Health & Safety, waste management and environmental impacts** - is it possible to quantify the scale of these impacts to enable clients to make informed rather than instinctive decisions about the value of their investment?
- **Risk** - will the selection of an OSC route expose the client to a new class of project risk associated with single point failure and market capacity?

Our assessment is that the use of modules will contribute to a **10 per cent** saving in overall project duration, giving a saving in preliminaries costs for labour and site management of **£400** per dwelling.

THE PREMIUM COST OF BATHROOM PODS

This case study is based on work carried out on behalf of Kingspan Group plc in connection with their role in the SixtyK consortium - one of the successful bidders to English Partnership's £60K house competition. It compares the costs of conventional and volumetric bathroom construction for dwellings developed for both the social and private sectors.

Quotations were obtained in competition from three manufacturers for bathroom modules designed to integrate with units constructed primarily out of structural panels and floor/ceiling cassettes. In the study, the costs of the modular units are compared with market costs for conventional bathrooms, taken from recent Davis Langdon benchmark studies.

The costs of the units themselves confirm a general expectation that, compared on a strictly like-for-like basis, a cost premium, in this case 10 - 25 per cent, exists for the volumetric components. This excess cost is offset, in whole or in part, by savings secured elsewhere in the development process including:

- Programme
- Reduced management associated with quality control
- Amortisation of design costs.

PROGRAMME GAINS

Programme benefits have been assessed using an approach first published by the DTI in 2002 (*Willmott Dixon, Standardisation and Pre-assembly, Report to the DTI Fast Track Programme, August 2002*) The summary outcome of the programme scenario is detailed in Table 3.

On the face of it, the saving of 55 hours is small in the context of the overall resource required in housebuilding. However, the data is related to productive hours, and in complex areas such as bathrooms, proper sequencing of the work to maximise onsite production is a significant challenge. The halving of the number of trade visits is a far more significant gain as it removes opportunities for delay, errors in scheduling, damage to proceeding work and so on.

Our assessment is that the use of modules will contribute to a 10 per cent saving in overall project duration, giving a saving in preliminaries costs for labour and site management of £400 per dwelling.

Other benefits identified in the DTI's research which also potentially apply to the project include:

REDUCED REQUIREMENTS FOR SNAGGING

The DTI's research shows that the simplification of onsite installation and the achievement of factory quality reduces time spent on inspection and snagging. Our assessment is that this saving is equivalent to £200 per pod.

AMORTISATION OF DESIGN COSTS

Volume savings can be achieved but units must be absolutely identical to form part of a single production run. Economies of scale and savings on design costs potentially represent a saving on the

basic cost of the module of £125.

SUMMARY

With all costs and tangible savings and benefits taken into account, the overall cost assessment of the bathroom options is as follows:

The analysis shows that, if the explicit benefits related to programme, quality and product volume can be secured from the supply chain, then performance and quality benefits can be secured at no cost to the project. Furthermore, as the quality of the pod fit-out increases, then the cost differential becomes less significant and the potential for real cost and quality benefits increase.

CONCLUSION

If it can be demonstrated that a direct, cost led case

can be made for the adoption of OSC options, are there other issues that the industry should address to encourage further uptake? We believe that there are. The OSC industry itself should take the initiative in sponsoring a wider range of case comparisons. Furthermore, given that the economic case is so dependent upon the capture of savings elsewhere in the supply chain, then OSC specialists should also consider how they can help their client to realise the benefits that can be secured elsewhere on the project, focusing on issues including: overall programme duration and use of onsite resources; a clear understanding of opportunities for economics of scale; clearly identifying the revised scope of work of onsite trades and the impact of OSC on site management and logistics. ■

Table 1: Indicative costs of construction options for Social Housing

Build Type	Construction Cost £/m ² (building only)
Brick and block	600 – 1,000
Open panel	600 – 1,000
Hybrid	680 – 1,150
Volumetric	780 – 1,300

Source: NAO

Table 2: Comparative costs of conventional and volumetric bathroom units

	RSL (£ per bathroom)	Open-market (£ per bathroom)
Conventional	2,500 – 3,000	3,700 – 5,200
Volumetric	3,000 – 3,900	4,500 – 5,300

Source: Davis Langdon LLP/Kingspan

Table 3: Programme and onsite labour analysis

	Man-hours for onsite installation (hours per unit)	Number of trade visits (per unit)	% time saved
Conventional	76	14	10%
Volumetric	21	7	

Source: DTI, Davis Langdon LLP/Kingspan

Table 4: Summary cost comparison

	RSL		OPEN MARKET	
	Conventional £/unit	Volumetric £/unit	Conventional £/unit	Volumetric £/unit
Build Cost	2,500 – 3,000	3,000 – 3,900	3,700 – 5,200	4,500 – 5,300
Preliminaries	NA	(500)	NA	(500)
Reduced Snagging	NA	(200)	NA	(200)
Design Standardisation	NA	(125)	NA	(125)
Total	2,500 - 3,000	2,175 - 3,075	3,700 - 5,200	3,675 - 4,475

Source: Davis Langdon LLP/Kingspan

Author Information:

Simon Rawlinson has published and lectured widely on the implementation of OSC and has carried out comparative costing studies for both clients and members of the OSC supply chain. Davis Langdon would also like to thank Tom Paul of Kingspan Group plc for his assistance in the preparation of this article.