**Project Proposal: P-3238 - Offsite construction – concept design and delivery**

## Background

The Government's Industrial Strategy - Construction Sector deal sees the four goals of Construction 2025 being met by focusing on three strategic areas: digital techniques, offsite manufacturing and whole life asset performance. Offsite construction is further supported by the Government's commitment to offsite construction for capital build projects from 2019 (Treasury budget document November 2017) and in the policies presented in the Construction Playbook (December 2020).

It is proposed that a good practice guide is produced to support initial concept planning for offsite construction, which could then be developed into a scheme design enabling clients to be better informed to specify and procure offsite on their projects. The guide will show what is possible when an offsite solution is sought and will enable the presumption in favour of offsite construction to be fully explored.

This new guide is primarily aimed at clients and those procuring new buildings & infrastructure to be better informed on the offsite options available in the sector and to make an initial assessment of the optimum use of offsite & MMC. It is anticipated it will also be used by planners and consultants, whilst also benefitting suppliers of products and services by giving them an opportunity to showcase offsite capability and identify where more standardised products could be developed.

Where a client has a pipeline of work with similar requirements over an extended time-frame they should consider developing a procurement strategy that involves the identification of product families and standardised product portfolios.

CIRIA & Buildoffsite's guide will be complementary to other industry initiatives and outputs. The construction sector appears to be at a tipping point with respect to wider use of MMC and in particular, offsite solutions. To ensure that clients and suppliers realise the potential benefits, guidance is required to exploit lessons learnt by prior projects and to highlight areas where innovation is happening.

## Justification

Current guidance is largely aimed at specific market applications. This guide would have a broader focus and thus be relevant to a wide range of clients, their advisors, main contractors and suppliers.

It would develop an approach to projects which takes the presumption of using MMC and offsite in particular, from the outset, whilst not excluding the possibility of traditional build methods being deployed so as to ensure that healthy competition is demonstrable, even where use of proprietary systems may be anticipated.

## Objectives

To provide practical guidance in the development of portfolio strategies, and at the early stages of projects with the aim of delivering projects with improved:

- Safety
- Productivity

- Cost
- Carbon Footprint
- Quality

Whilst not overly constraining the creativity of designers.

The guide will support initial concept planning for offsite construction, which could then be developed into a scheme design enabling clients to be better informed to specify and procure offsite on their projects. The guide will show what is possible when an offsite solution is sought and will enable the presumption in favour of offsite construction to be fully explored.

**Output**

- Good practice guidance available in printed and PDF format
- Industry dissemination

**Project Team**

- Representatives of Buildoffsite & BOPAS
- Buildoffsite Members
- CIRIA Members
- Government/Industry Representatives

**Method of approach**

1. **Fundraising**
   CIRIA & Buildoffsite working with interested parties, will develop and fundraise the proposal.

2. **Project start-up**
   Buildoffsite would initiate the project.

3. **Scoping**
   The proposed scope is listed in appendix 1 below. This would be validated / revised with the Advisory Group.

4. **Development of guidance**
   An advisory group would be established to monitor progress and provide input to a peer review process prior to publication. This will include the project's funders.

   The development of the guide would be managed by Buildoffsite.

   2 workshops will be held, one with clients, another with suppliers to get the views of these two key stakeholder groups; those procuring the work and those supplying products and services to clients.

   Sections would be drafted by nominated authors.

5. **The team**

A project team of Buildoffsite & CIRIA employees would lead the project, including facilitation, editing, design & publication. The project team will include from Buildoffsite;

Nigel Fraser – Industry Advisor
Doug Waters – Client Group Lead
Fareita Udoh – Project Manager
Joe Dyde – Business Manager

The authoring team would also include representatives from Buildoffsite and CIRIA members, with the following organisations having verbally agreed to contribute specific sections on a pro-bono basis:

Sheppard Robson - Architects
WSP Group - Engineers
Laing O'Rourke – Main contractor / systems manufacturer

An Advisory Group will be formed consisting of the project & authoring teams. Funders and contributors will be invited to Advisory Group Meetings (likely virtual) to input and advise upon major project milestones and understand project progress.

6. **Promotion and dissemination**
In the lead up to and following publication, the guidance will be promoted by CIRIA and Buildoffsite. A launch event will be organised following publication.

**Benefits of involvement**

**Industry leadership** – leadership by influencing and shaping industry guidance.

**Industry collaboration** – Collaboration at a strategic level to address an industry issue

**Industry expertise** – Recognition of an organisation's reputation as an expert

**Setting the standards for industry** - CIRIA & Buildoffsite guidance is often cited in client specifications and engineering standards as good practice to adopt

**Business marketing** – The work of CIRIA / Buildoffsite is widely reported in industry press and social media. Those who fund the project are formally acknowledged in the publication and their organisation's logo appears on the back cover of the guide. (The CIRIA and Buildoffsite logos appear on the front cover). Recognition in this manner is long lasting and immediately positions an organisation as a leader, collaborator and expert.

**Industry dissemination** – This is an opportunity for funders, project members and sponsors to promote their involvement. These events will also be highlighted in CIRIA / Buildoffsite communications.

**Business impact** – Involvement with a CIRIA / Buildoffsite project can only help to raise an organisation's profile with a wider audience of practitioners. Whether you are a client or practitioner, industry wants to see that the service they are getting is based on good practice. Clients

want to be able to assess their operational performance against good practice. Practitioners want to know they are working to good practice.

***Appendix 1 - Offsite construction – concept design and delivery – contents list***

**0 Preliminaries**

a. Disclaimer & copyright notice
b. Funders
c. Short biographies for editor and authors
d. List of stakeholder reviewers
e. Foreword

**1 Executive summary**

**2 National context**

A short section to set the scene and highlight a range of opportunities for exploiting offsite at scale.

**3 Whole life considerations – cost and carbon**

The whole life aspects have taken a much more significant dimension now we understand the potential consequences of climate change, with whole life carbon becoming an essential consideration. This chapter will look at how whole life cost and carbon can be optimised in an offsite context. It will consider the need to combine decision making relating to both capital and revenue budgets along with environment and social responsibility regulations for new facilities.

**4 Project planning**

There are specific actions required in the project planning process to ensure benefits of offsite are achievable. These are presented for project managers and funders to take into account, considering the fit with plans of work (generic for building & infrastructure, including the revised DfMA overlay for the RIBA).

a. Site context and concept design
b. Applying offsite systems (before planning application submittals)
c. Detailed design
d. Manufacturing and construction, logistics and buildability

**5 Benefits and risk management considerations**

Building upon the outputs of the CIRIA & University of Cambridge report *'Methodology for Quantifying the Benefits of Offsite Construction'*, the benefits of optimising the use of MMC in projects will be further explored; including safety, productivity, cost, carbon footprint & quality. Further to this, the risk profile of a project changes when offsite methods are central to project delivery. Some new risks may be added whilst numerous risks are removed or reduced. This chapter will provide insight for these aspects.

**6 Guidance on specifying for performance**

A key aspect of exploiting offsite successfully is not being overly prescriptive in the early stages of specification and design. This section will present a range of lessons learn and

guidance from offsite suppliers to help avoid this. It will include aspects such as structural grids and floor layouts etc.

**7 Product trends in different market sectors**

The construction sector covers a wide range of activities. Offsite product and service providers tend to target specific market sectors. This chapter aims to highlight trends in sub-sectors of the market, both for buildings and infrastructure, including initiatives led by clients and "platform" strategies – *a primary output from the clients' and suppliers' workshops.*

**8 Offsite accreditation scheme evolution**

BOPAS has been established as the robust accreditation scheme for offsite methods. This chapter will outline how the scheme is likely to evolve.

**9 Evolving procurement processes**

Traditional approaches to procurement have their limitations when it comes to optimising the exploitation of offsite construction methods. This chapter highlights a range of these issues and suggests a number of potential solutions.

**10 The product integrator role**

As offsite assemblies become more complex, the construction process is becoming more like those used in other industry sectors. In this section the emerging role of the product integrator is explained, along with related aspects of managing the process of design coordination and inputs from specialist suppliers. *This will be linked to the Construction Playbook and "Project 13"*.

**11 Conclusions**