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Written Evidence from BLP Insurance to The All Party Parliamentary Group for Excellence in the Built Environment which will look at the Quality of New Build Housing in England

We are responding to the call for written evidence from the APPG for Excellence in the Built Environment with a particular focus on the following criteria:

- ensuring better quality workmanship;
- have the potential for implementing smart housing with interoperable services and the provision of better and smarter information to new homeowners;
- bring forward the opportunities afforded by offsite manufacturing;

and how The Buildoffsite Property Assurance Scheme (BOPAS) can support this.

Background

For the UK to be successful at overcoming the chronic housing supply shortage, the industry needs to look beyond traditional forms of construction. The requirement to fill the supply and demand gap of over 100,000 homes needs to be met with housing that is both sustainable and cost effective. If the industry embraces offsite or non-traditional forms of construction we could find our solution.

Non-traditional construction systems, also known as offsite manufactured (OSM) or modern methods of construction (MMC), essentially refers to any form of construction method outside of the traditional bricks and mortar route. Prefabrication in a factory setting is by no means a new concept and the benefits are clear; speed of construction, reliability of materials and manufacture, improved performance and a potential reduction in construction costs.

It is becoming increasingly clear that traditional house builders alone are not going to be able to bridge the supply gap for the following reasons:

- The desperate lack of materials in the housing industry.
- Britain is also currently facing the biggest skills shortage for a generation with estimates showing that the construction industry needs 35,000 new entrants just to stand still.

Traditional house builders know what their customers want and are unlikely to transition fully to non-traditional forms of construction, although a number are trialling various offsite solutions. While they may engage with the concept on the periphery, the real growth area for offsite methods will be the burgeoning private rented sector (PRS). We are seeing the sector start to take off in London: a quarter of Londoners are already living in the PRS and this figure is expected to overtake owner-occupied within the next decade. Most of these PRS developments coming to market are repeatable and this model ideally suits the offsite industry. Furthermore, funding in this sector will come predominantly from institutional investors, looking to invest in secure large scale developments, where the economic benefits will be matched by the consistency and sustainability that offsite manufacture provides.

One of the main advantages of OSM is quality. In the UK, buildings currently fall short by up to 30% in terms of how they were originally designed to perform. Properties built in a factory will have a higher level of quality control compared with a construction site, improving the performance of the building over time. This improved performance from offsite techniques should translate into reduced energy and maintenance costs of the building.

While the benefits of MMC and OSM are clear in terms of providing housing that is both sustainable and cost effective, it doesn't come without its challenges. Concerns around systematic failure, fire spread and water ingress, both during the construction phase and after completion, have been raised around the use of offsite techniques.

These concerns are being addressed by The BuildOffsite Property Assurance Scheme ("BOPAS"). BOPAS was launched in 2013.

The Scheme has been jointly developed by Buildoffsite, The Royal Institute of Chartered Surveyors, Lloyds' Register, BLP and the Council of Mortgage Lenders (CML), to provide assurance to the lending community that non-traditional constructed properties against which they may be lending, will be sufficiently durable as to be readily saleable throughout the duration of two mortgage terms, which may equate to 60 years. Further that the structural integrity will not intrinsically have a negative impact on the mortgage security during that term.

The Assurance Scheme comprises:

- A 60 year durability assessment
- Assessment and accreditation against best practice
- The provision of a web based data base comprising property structural elements

The Assurance Scheme is transportable and may be applied in a number of countries depending upon the established regulatory regime.

The Assurance Scheme – Service Provision

1 Durability and maintenance assessment

The BLP durability assessment is a rigorous and structured process following the principles for service life planning of built and constructed assets in the international standard ISO 15686.

The durability assessment is based on a standard time frame of 60 years. This would be the minimum expectation for structural components unless intended specifically for more temporary applications.

Where shorter life components are identified, expected service lives are stated including relevant maintenance requirements.

The purpose of the BLP durability assessment is to give an opinion about the probable service life of a building, building component or assembly for expected environmental and use conditions:

- The BLP durability assessment qualifies as an independent technical approval for an assessment of suitability for housing as set out in the Housing Corporation requirements in the Scheme Development Standards 5th Edition April 2003 section 1.6.3
- Issues relating to repairability, maintainability and suitability for housing are covered and the assessment includes:
 - Structural performance
 - Interface design and detailing
 - Resistance to key agents of degradation (corrosion of metals, decay of timber, etc)
 - Risk of interstitial and surface condensation
 - Resistance to weathering, wind, rain and radiation
 - Resistance to thermal and moisture movement
 - Expected durability and maintenance requirements
 - Quality control processes (e.g. factory controls, transport, storage, installation, feedback, dealing with faults and change mechanisms)
 - Installation process: e.g. training, installation manual, qualifications

33428 - SINGLE-SCREEN Design & Workmanship

Location: All Element: FW Subject: All Criteria: All Quality: All

Subjects (F2)

Location	Element	Subject	Quality	Site	Site Hist	Note	Criteria	Seq
BoS Appraisal	FW	Fixing schedules	X			Yes	General de...	0010
BoS Appraisal	FW	Sliding and overturning	X			Yes	General de...	0011
BoS Appraisal	FW	Vapour control layer	A			Yes	General de...	0012
BoS Appraisal	FW	Assessment of wind loading	X			Yes	General de...	0013
BoS Appraisal	FW	Structural calculations for timber wall studs	X			Yes	General de...	0014
BoS Appraisal	FW	Load transfer to timber studs	I			Yes	General de...	0015
BoS Appraisal	FW	Structural calculations for timber lintels	X			Yes	General de...	0016
BoS Appraisal	FW	Racking resistance - need for specific testing					General de...	0017
BoS Appraisal	FW	Racking resistance - structural calculations	X			Yes	General de...	0018
BoS Appraisal	FW	Racking resistance - contribution of masonry veneer	P			Yes	General de...	0019
BoS Appraisal	FW	Racking resistance - contribution of plasterboard	P			Yes	General de...	0020
BoS Appraisal	FW	Racking resistance - material suitability	Q			Yes	General de...	0021
BoS Appraisal	FW	Fixings for sheathing Materials	X			Yes	General de...	0022

Statements (F3) VAPOUR CONTROL LAYER

Quality	QuikSel	Statement
<input checked="" type="checkbox"/>	A	0 No formal vapour control layer is proposed. However, it has been demonstrated that interstitial condensation can be avoided. This is by virtue that the combined vapour resistance of the layers on the warm side of the insulation is at least 5 times greater than that of the layers on the cold side.
<input type="checkbox"/>	X	1 It is not clear what type of vapour control layer, if any, is to be used, i.e. it is not known if a separate membrane or vapour control plasterboard is to be provided.
<input type="checkbox"/>	Q	2 No separate vapour barrier, e.g. 500 gauge (125 micron) polythene sheeting or vapour control plasterboard has been specified.
<input type="checkbox"/>	Q	3 Polythene sheeting less than 500 gauge (125 micron) has been specified which does not accord with BRE specification.
<input type="checkbox"/>	Q	4 No formal vapour control layer has been included and reliance is placed on the breathing qualities of the construction. However, this will prove unreliable, as the combined vapour resistance of the layers on the warm side of the insulation is not at least 5 times greater than that of the layers on the cold side.
<input type="checkbox"/>	A	5 Polythene sheeting not less than 500 gauge (125 microns) has been specified to the inner face of the external wall panels.
<input type="checkbox"/>	A	6 Vapour control plasterboard, e.g. Gyproc Duplex, is specified to the external wall panels.

Auditor notes (F4) - Current

The Hemcrete wall is designed as a fully breathing construction. Two BuildDesk calculations to BS EN ISO 13788 provided, one with normal external RH values and another assuming 90% RH for every month of the year and in both instances calculation predicts "NO CONDENSATION IS PREDICTED AT ANY INTERFACE IN ANY MONTH". Both calculations assume external air temperatures are depressed by 7 degC on normal modelling. Both calculations include the XS LT sheathing board but not the 3mm wet plaster. Inclusion of the plaster should have a neutral impact or improve results.

BBA state "moisture changes will vary within the overall Tradical Hemcrete matrix due to the external and internal environment and the building's geographical location. Should dynamic modelling suggest that moisture levels in service within the matrix are likely to exceed 18% (as defined in BS 5268-2:2002, Table 1) then all timbers must be preservative treated in accordance with BS 1292:1999. Lime Technology have stated that timbers will be treated in all cases (see component life schedule).

Audit notes (F5) - Previous

Matrix Components Photos Early Warning Scl. Ndg

Audit Notes OK Cancel

Where required BLP also assess key performance requirement not directly related to physical durability and service life expectations, such as:

- Fire resistance
- Thermal
- Acoustics

2 Accreditation

Innovative construction represents a risk, not only to mortgage lenders and asset valuers, but it also represents a potential risk to the designer, manufacturer and constructor as, by definition, the product/system is new and creative and degrees of uncertainty will therefore prevail.

The degrees of uncertainty, however, to both the business and the project/contract may be limited if a structured approach is adopted to risk management, competency management, configuration management, procurement, management and process control at each stage of development, through concept, design, manufacture and construction.

A structured and systematic approach at each phase of the project life cycle will ensure consistency and repeatability and the Accreditation Scheme requires this discipline to be adopted by organisations seeking accreditation.

Assessment Services

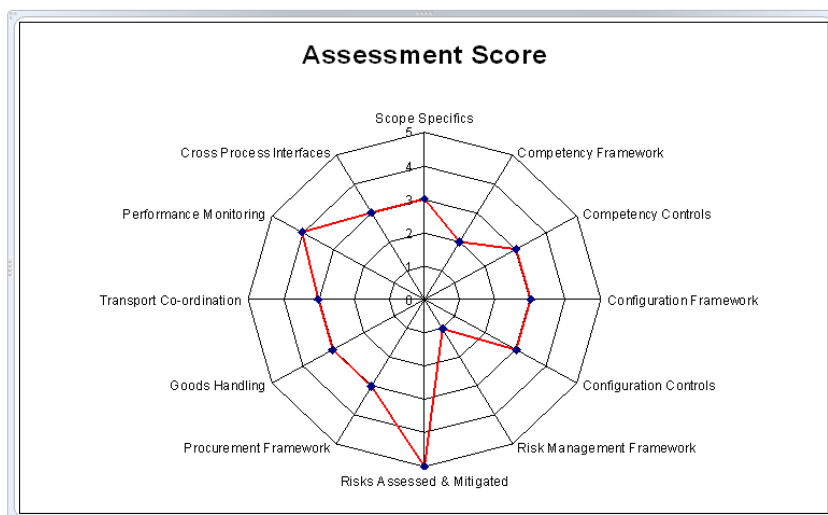
Gap Analysis

The Gap Analysis is undertaken to examine the overall status of the processes, systems and competencies.

The analysis will assess the existing arrangements against a framework of risk mitigation measures typical of an organisation operating in the offsite sector. The analysis focuses primarily on high level system design in order to identify significant areas of weakness. This will provide an independent view of where more system development work may be necessary to meet accreditation requirements.

The analysis would be carried out over a period of one day at the manufacturers offices by 1 or 2 Assessors. It is unlikely that site visits will be required at this stage.

The gap analysis will represent a 'walk through' of the systems, competency and risk



processes and will comprise discussions and interviews with key staff. There will be no requirement for reviews of documentation or any form of verification during this phase of the assessment.

Full Implementation Audit

Throughout the audit, the approach taken by assessors is designed to provide “added value” to the assessment by being open, helpful and adopting a practical approach to system evaluation.

The aim of this phase of the assessment is to confirm that:

- The policies, strategy, objectives, plans and procedures assessed during the gap analysis are effectively implemented
- The gaps identified during the analysis stage have been addressed and the revised systems have achieved a level of maturity
- An integrated risk process has been established and identified risks are being managed within the management systems
- Adequate management control is being exercised over subcontractors and suppliers
- Change management is effectively controlled
- Competency of all grades has been comprehensively evaluated and managed

The Assessment Team will report, as a minimum, any findings related to:

- Follow up of findings from the gap analysis
- Aspects of the business which support delivery of scopes of work for which accreditation is sought and will include competencies, methodologies and safe systems of work
- Effectiveness of the management systems with regard to achieving the commitments of the organisation’s policy and strategy including, continual improvement and control of risks
- Implementation of risk mitigation measures
- Implementation of the monitoring and measurement provisions to determine the performance of the management system and the achievement of business objectives
- Effectiveness of the internal audits, corrective and preventative action.

If major deficiencies are identified during this phase of the assessment then these will require addressing, closed out and verified before registration may be granted. Should minor deficiencies be identified then registration may proceed and the deficiency close out will be verified during the first surveillance visit.

The Surveillance visit programme will be agreed with the manufacturer at the time of registration and will span the 3 year registration validity period of the Buildoffsite Scheme.

Surveillance Visits

Once the manufacturer has achieved registration under the scheme, Lloyds Register will establish a program of routine surveillance visits, which are normally arranged to take place on a six monthly basis.

3 Web based database

A web enabled database has been created comprising details of assessed building methodologies, registered sites and registered/warranted properties.

The website operates a traffic light system so that the progress of a system through the assessment process can be tracked.

Developed schemes using a BOPAS accredited system are uploaded to the database allowing valuers to assess by postcode if a particular property constructed from non-traditional means has been through the BOPAS process.

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ACCREDITED ORGANISATIONS





The designers, manufacturers, and constructors involved in offsite manufactured systems are rigorously audited and approved to maintain the highest levels of quality assurance. This ensures their construction systems are approved for integrity, durability and performance.

Search for organisations on the BOPAS database:

Organisation name	Organisation type	Approval status	Associated technologies
Adston UK Ltd	Constructor	Amber	SIPS
Adston UK Ltd	Designer	Amber	SIPS
Adston UK Ltd	Project Management	Amber	SIPS
BK Structures Ltd	Designer	Green	Cross laminated timber based
BK Structures Ltd	Project Management	Green	Cross laminated timber based
Climate Energy Homes Ltd	Constructor	Green	Modular Eco-Tech Construction System
Climate Energy Homes Ltd	Designer	Green	Modular Eco-Tech Construction System
Climate Energy Homes Ltd	Project Management	Green	Modular Eco-Tech Construction System

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Industry response to BOPAS

This is what leading industry bodies are saying about BOPAS:

Bill Hughes – Head of Real Assets, Legal and General investment Management

"At Legal & General Investment Management we consider Offsite and Modern Methods Construction (MMC) sector to be an important part of the future in terms of addressing the supply shortage issues currently facing the construction industry. Key benefits include being able to deliver consistency in terms of quality and reliability in timing in a sustainable fashion - features that appeal to long term institutional property investors.

The BOPAS scheme will be an integral part of any credible organisations offer, when producing any Offsite/MMC products. It is key in providing the surety and insurance backed guarantee a long term property investor requires, when investing in a property that utilises modern technologies and products."

RICS

"The Royal Institute of Chartered Surveyors has actively supported and facilitated the development of BOPAS and fully supports the web based database that enables members to access constructed systems data and therefore to value offsite constructed properties from a more informed perspective "

CML

"The scheme was developed following consultations with the main UK lenders to understand and address their perceived risks in lending against non- traditional construction systems. New methods of modern construction are designed to be more energy efficient and comprise significantly less embedded energy than standard traditional construction techniques.

The Buildoffsite Property Assurance Scheme (BOPAS) comprises a rigorous durability and maintenance assessment and process accreditation, supported by a web-enabled database which gives access to details of assessed building systems, registered sites and individual properties which have been warranted under the scheme. The data base will not only hold information relating to first sales after construction but will be accessible for the life of a property, allowing all subsequent sales to be similarly checked against the database (www.bopas.org)"

RICS (in their Residential Policy statement 2015)

"Government should support the Buildoffsite Property Assurance Scheme (BOPAS) which has been jointly developed by RICS, Lloyds Register and Building LifePlans Ltd (BLP) in consultation with the Council of Mortgage Lenders (CML) and the Building Societies Association (BSA) to provide reassurance to the lending community that innovatively constructed properties against which they may be lending, will be sufficiently durable as to be readily saleable for a minimum of 60 years".



Summary

We propose that Government should endorse BOPAS as in independent accreditation process to improve confidence in the durability and quality of homes manufactured from offsite technologies.

We believe that this will give confidence to investors and funders and provide stimulus to the industry in addressing the UK housing shortage and supporting innovation in construction.

Jeff Maxted

Director of Technical Consultancy

30th October 2015