construction products association

Construction 2025

Industrial Strategy

A Long-Term Projection of Construction Output and Analysis of the Current Level of Capacity Utilisation for Construction Product Manufacturing

April 2014

Vision for 2025

'An industry that drives and sustains growth across the entire economy by designing, manufacturing, building and maintaining assets which deliver genuine whole life value for customers in expanding markets both at home and abroad'

page 18, Construction 2025: Industrial Strategy for Construction

Executive Summary

In the last 25 years the pace of global investment has accelerated at an unprecedented rate and is reshaping the international economic landscape. In construction, many firms conduct business on a multi-national scale and, as a result, have a choice over where they invest. The key challenge facing the industry is to ensure that the UK is the favoured location for global firms to invest.

This study is the first in a series of projects that the Construction Products Association is contributing to support *'Construction 2025: Industrial Strategy for Construction'*[1]. The key findings include:

- the construction industry is expected to undergo a period of strong growth over the next decade;
- the industry would benefit from greater investment in order to improve both capacity and productivity;
- if imports rise in the long-term the government's ambition to reduce the trade deficit on construction products and materials by 50% would be difficult to achieve.

Introduction

In 2007, according to the ONS, the total value of construction output was £128.2 billion. Following the financial crisis of 2008 and subsequent recession the economy contracted by 5.9%. By 2009, construction output totalled £108.3 billion, a fall of 15.5%. In 2013, total construction output was £112.6 billion (approximately 7.0% of total UK GDP) and the industry employed over three million people (equivalent to 10.0% of total UK jobs). Although construction has begun to stage a recovery, following growth of 1.1% last year, over the medium and longer term a number of key issues are likely to affect growth.

In October 2013 the Department for Business, Innovation & Skills published *'Construction 2025: Industrial Strategy for Construction'*, a joint publication between government and industry. *Construction 2025* set out how, going forward the UK can place itself at the forefront of global construction. To achieve this, a number of ambitions were outlined including an *"improvement in exports: 50% reduction in the trade gap between total exports and total imports for construction products and materials"*.

This paper seeks to understand current UK construction manufacturing capacity, to forecast demand and map the manufacturing industry's ability to grow and meet that demand. The outcome of this mapping will determine any pinch-points in capacity and to make the economic case for investment. A further project will look at increasing exports of UK products.

The information and analysis within this document includes:

- a projection of construction output to 2025;
- estimates of the current level of capacity utilisation for heavy side and light side construction product manufacturing firms;
- productivity estimates for construction and manufacturing; and
- an historic analysis of UK trade in construction products.

The Construction Products Association has agreed to lead this work on behalf of the industry. This paper sets out the key themes relevant to the Construction Products Association's contribution to the Industrial Strategy and its commitment to ensure that the UK is the favoured location for global firms to invest.

1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/210099/bis-13-955-construction-2025-industrialstrategy.pdf

Summary of Actions

The Industrial Strategy contains a table of joint industry and government commitments that will enable the collective delivery of the Vision for 2025. The Construction Products Association agreed to undertake the following actions as part of the Industrial Strategy.

Table 1: Commitments

Strategic Priority	Action	Target Date	Owner
Global Trade	Government and industry to undertake a construction manufacturing capacity and capability gap analysis to understand what may enable capacity expansion	Spring 2014	Construction Products Association
Global Trade	Government and industry to identify measures to boost export growth and enhance competitiveness at home and abroad	Spring 2014	Construction Products Association/ UKTI
Future Work Opportunities	Consider a process to identify specific areas where regulatory risk is creating concern to the construction industry	To begin in Autumn 2014	Construction umbrella bodies and BIS
Future Work Opportunities	Government, CBI (for business) and the industry to create a demand map for the industry, including infrastructure, RMI and new build to 2025	Autumn 2013	CBI and construction umbrella bodies

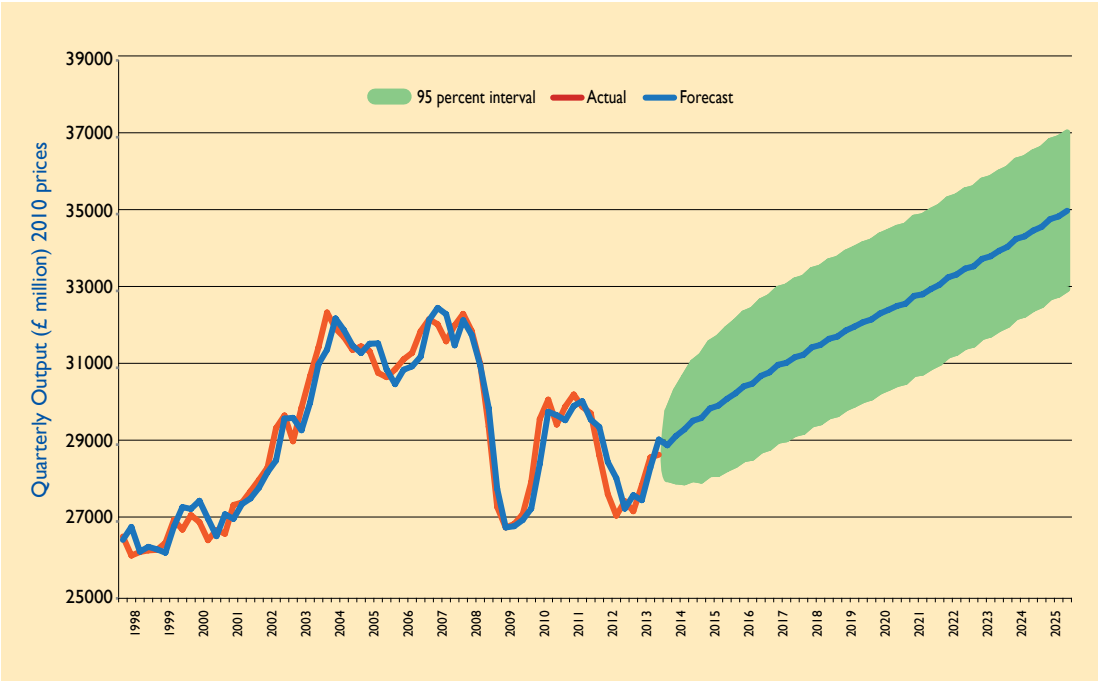
Each of these actions entails its own unique work stream and timeframe. The following sections focus on specific economic issues that relate to these actions either directly or indirectly. The contents of each, and how they relate to the above actions, can be summarised as follows;

- The 2025 projections and estimates of capacity provide the background for the action on 'manufacturing capacity and capability gap analysis'.
- The investigation on trade provides the basis for the action point to 'identify measures to boost export growth and enhance competitiveness'.
- On the action 'where regulatory risk is creating concern to the construction industry', this paper acts as a precursor to follow-up work that seeks to identify if links between regulatory risk and investment in UK construction exist.
- Finally, the 2025 projections provide the guidelines for potential growth in construction supporting the 'demand map' work stream.

2025 Construction Output Projections

As part of the capacity and capability gap analysis, the Construction Products Association has developed an econometric model of total construction output that projects output from 2014 Q1 to 2025 Q4 using a number of macroeconomic drivers. Figure 1 shows the historic data on construction output (red) and the central projection model values (blue). The green shaded around in the projections depicts upper and lower bounds (95.0% confidence interval).

Figure 1: 2025 Projection of Construction Output



In 2013 construction output totalled £112.3 billion. The central projection indicates that output in 2025 will total £139.6 billion. Based on the 95% confidence interval, however, this total could be as low as £131.4 billion, or as high as £147.7.

The five-year growth rates are shown in Table 2. Although there are differences in the short term, the final years of the projection indicate that growth rates across the three scenarios are likely to converge.

Table 2: Growth Projections

Construction Output (£ million) 2010 prices	2010	2015	2020	2025
Lower	117385	112904	121663	131420
5 year Growth Rate		-3.8%	7.8%	8.0%
Central	117385	119838	129786	139562
5 year Growth Rate		2.1%	8.3%	7.5%
Upper	117385	126772	137910	147704
5 year Growth Rate		8.0%	8.8%	7.1%

Table 3 (below) sets out the assumptions relating to each of the projections for construction output. The central estimate reflects the most likely outcome of each key driver, given current economic conditions.

Table 3: Scenario Analysis

Scenario	Assumptions
Central Estimate	• Economy; UK to continue recovery into the medium term with business investment recovering in 2014 and the interest rate rises post 2015 • International factors; Eurozone unlikely to impact significantly on UK economic recovery • Housing; Help to Buy to end in 2020 with no additional government stimulus to the housing market • Energy infrastructure; main works at nuclear reactor Hinkley Point C expected from 2015 and main works at the new nuclear reactor Wyfla occur at some point within the projected horizon • Rail infrastructure; main works on HS2 occur toward the end of the horizon • Infrastructure pipeline; current pace of work continues throughout the projection
Lower Estimate	• Economy; UK recovery into the medium occurs but with annual growth below long term average. Business investment continues to remain weak until 2016 onwards and the interest rate remains at 0.5% until post-2017 • International factors; Eurozone conditions deteriorate and begin to restrain UK growth • Housing; Help to Buy to end in 2020 and housing starts begin to decline • Energy infrastructure; main works at nuclear reactor Hinkley Point C are delayed until beyond 2015 and main works at the new nuclear reactor Wyfla do not occur within the projected period • Rail infrastructure; HS2 does not go ahead • Infrastructure pipeline; pace of work slows throughout the projection and few projects are completed on time
Upper Estimate	• Economy; UK returns to long-term trend rate of growth in 2014 and this continues into the projected horizon, the interest rate rises in 2014 due to strong recovery • International factors; widespread Eurozone recovery begins in late 2014 or early 2015 • Housing; Help to Buy to end in 2020 by which time the market has recovered • Energy infrastructure; main works at nuclear reactor Hinkley Point C begin in 2015 and main works at the new nuclear reactor Wyfla occur prior to 2020 • Rail infrastructure; main works on HS2 occur toward the end of the horizon • Infrastructure pipeline; pace of work increases throughout the projection and most if not all projects are completed on time

Capacity

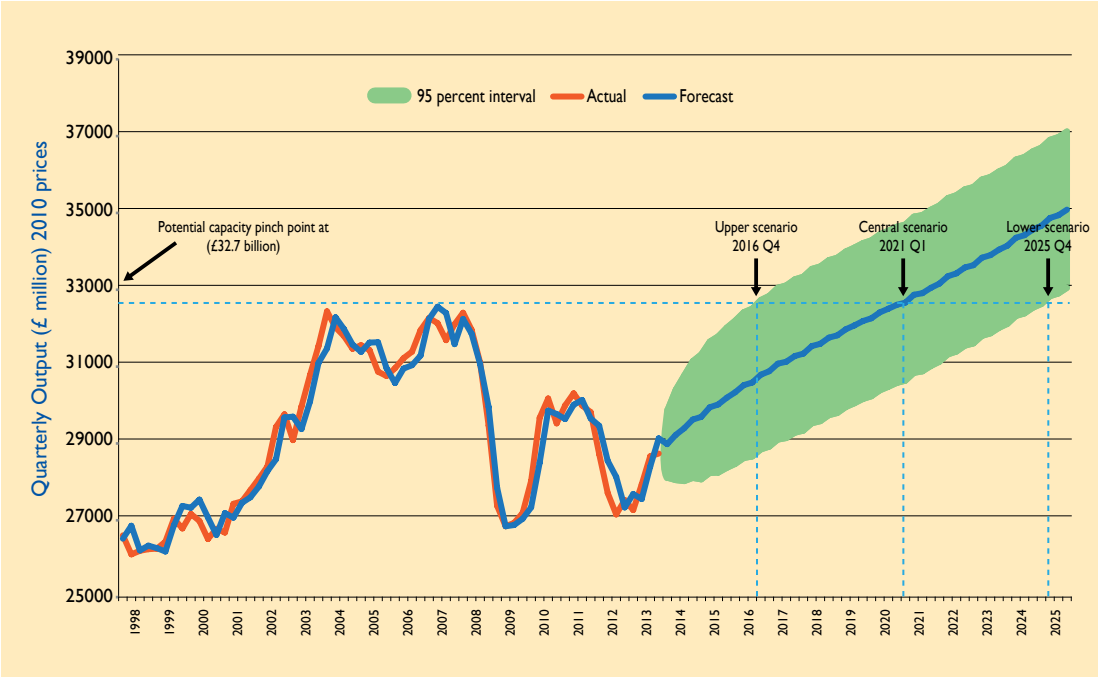
The following estimates for capacity utilisation have been taken from the State of Trade Survey, which is conducted by the Construction Products Association on a quarterly basis. The analysis is split between heavy side and light side construction products. Heavy side products are typically structural materials used early in the construction process, whereas light side products are typically installed later in the construction process.[2] The annual estimates shown in Table 4 are calculated as the average of the four quarters in each year.

Estimates for capacity show that current capacity utilisation is around 10.0% lower than in 2007. According to the ONS, construction output in 2013 was 12.2% lower than in 2007 implying that the fall in utilisation can likely be explained by the fall in output. These estimates for utilisation have been integrated into the 2025 projections in order to determine 'pinch-points' where production cannot be increased further, which occurs at maximum capacity utilisation i.e. 100% (calculated using 2013 Q4 capacity utilisation estimates). However, since it is unlikely that private sector firms would wait until all capacity is utilised before investing in additional, a more appropriate limit of 95% utilisation has been used for the 'pinch point' estimate instead.

Table 4: Estimates of Capacity Utilisation

Year	2001	2008	2009	2010	2011	2012	2013
Heavy	83.6%	76.4%	66.0%	78.7%	75.8%	75.3%	75.3%
Light	87.6%	82.5%	78.5%	92.8%	78.8%	78.1%	78.1%
Average	85.6%	79.4%	72.3%	85.8%	77.3%	76.7%	76.7%

Figure 2: Capacity Pinch-points



2 Heavy side materials include: aggregates, cement, ready-mix concrete, structural and reinforcing steel. Light side products include: heating and ventilation systems, plumbing, electrical and lighting, doors and windows, kitchen furniture and insulation

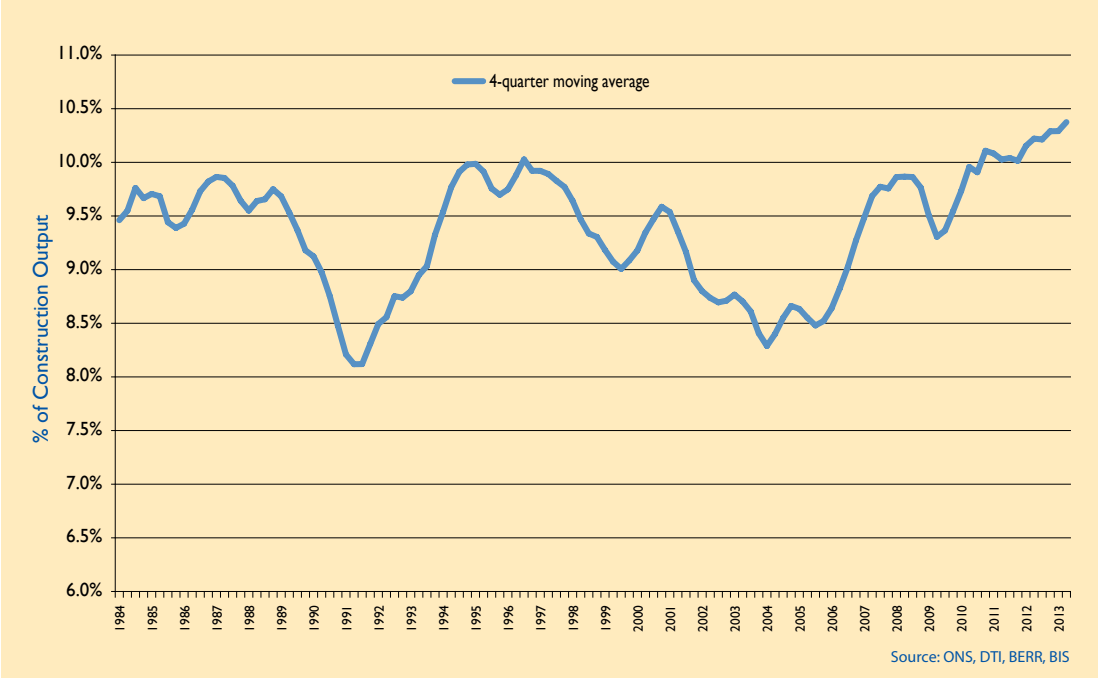
According to the State of Trade Survey 2013 Q4, average capacity utilisation across heavy side and light side firms was 80.4% and, according to the ONS, total construction output in 2013 Q4 was £28.7 billion. Based on these figures, at 95% capacity utilisation, (i.e. assumed maximum production potential), quarterly construction output would reach £32.7 billion. Based upon all three scenarios, firms will reach maximum productive capacity within the projected horizon. For the central projection, firms will reach capacity utilisation by 2021 Q1, for the upper scenario this will occur in 2016 Q4, and based on the lower scenario it will occur by 2025 Q2.

Trade

There is a close correlation between imports and construction output over time (Figure 3). Between 1983 Q1 and 2013 Q3, the correlation coefficient between the two series is 98.4%. Imports as a proportion of construction output has remained between 7.9% and 10.9% in each quarter since 1983 across different economic, political and regulatory environments, averaging 9.4% between 1983 Q1 and 2013 Q3. The increase in construction demand since 2013 Q2 has led to an increase in demand for products and materials. This has been met through both an increase in domestic production and a rise in imports.

In the short-term, it is unsurprising to have a rise in imports following a prolonged period of recession for the construction industry. Imports of products and materials in 2013 averaged 10.7% of construction output.

Figure 3: Imports as % of Construction Output



By the end of 2015 there will be clearer indication of whether imports as a proportion of construction output remain at historical averages or whether the proportion continues to rise as global manufacturers, faced with political and regulatory uncertainty, import rather than invest in UK manufacturing. In the medium-term, construction output is projected to rise 26% by 2025. Assuming that the relationship between imports is maintained, this implies that imports will also rise by 26% by 2025.

It is essential that imports of construction products and materials as a proportion of construction output do not increase at a faster rate than exports if the government's target of a 50% reduction in the trade deficit on construction products is to be achieved.

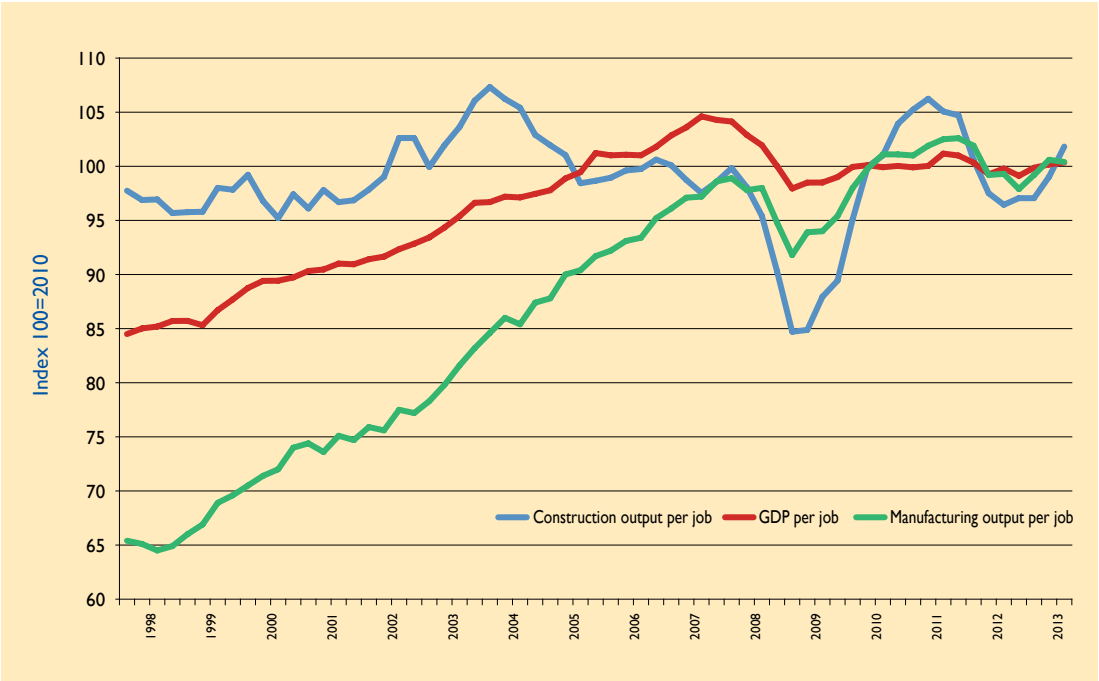
Example – Clay Bricks and Concrete Blocks

The demand for construction products has risen considerably over the past year. This increase in demand has been met by a rise in domestic production, in addition to an increase in imports. But, if there is insufficient domestic supply then there will need to be investment to raise production levels, otherwise imports are likely to continue to rise in the long term. For example, comparing bricks and blocks; following a rise in demand, imports of bricks in Q3 were 39% higher than one year earlier, and domestic production in November had also risen by 27%. However, although imports of concrete blocks in Q3 were 63% higher than a year earlier, domestic production in November was flat. Whereas brick manufacturers have so far raised production to meet some of the rise in demand this has not yet occurred for concrete blocks. It is important that as demand continues to grow, UK manufacturers across all sectors are capable of raising production levels medium-term.

Productivity

GDP per job is a measure of labour productivity across the whole economy. In broad terms, it is the ratio of outputs to inputs and measures the efficiency of production. Growth in productivity is a key driver of growth of economic output, and leads to increased living standards through increases in real wages and increased business profitability.

Figure 4: Productivity



As Figure 4 highlights, productivity in the UK economy grew strongly until the financial crisis in 2008. During 2008 and 2009 productivity declined and since 2010, productivity has remained broadly flat. Similarly, manufacturing productivity also suffered a sharp fall in 2008 and 2009. Following a period of recovery in 2010, manufacturing productivity has remained broadly flat since 2011. Productivity within construction has been broadly flat since 1998 with a sharp fall in 2008 and 2009 offset by rises in 2010 and 2011. The key periods of change can be summarised as follows;

1998 Q1 to 2007 Q4

GDP per job showed promising growth in the decade leading up to the 2008/09 recession having increased by 23.4%. Stronger growth was observed in manufacturing productivity; output per job grew by 50.0% during the same period. However, in construction, productivity grew by only 0.8% over the 10-year period.

2008 Q1 to 2009 Q4

During this two-year period, productivity as measured by output per job fell for the whole economy, by 4.9%. In manufacturing, output per job fell by 3.5% but despite these falls, the recession did not eliminate the considerable growth of the previous 10 years. In construction, however, the sector experienced growth in productivity of only 0.8% in the decade leading up to the recession and productivity contracted by 10.4% during 2008 and 2009.

2010 Q1 to 2013 Q3

Total productivity, as measured by GDP per job, increased only 0.4% between 2010 Q1 and 2013 Q3. Conversely, in manufacturing, output per hour recovered much of the loss that occurred during the recession, rising 7.1% between 2010 Q1 and 2013 Q3. In construction, productivity grew by 2.5% between 2010 Q1 and 2013 Q3 following the fall in productivity during 2008 and 2009.

The accumulation of physical and human capital augments productivity directly but it can also indirectly encourage investment. Physical and human capital is accumulated by investing, and has the direct impact of raising the efficiency of production. Moreover, since the effect of raising the efficiency of production leads to higher profitability, this indirectly creates additional incentives to increase investment. This is often the case and helps to explain why sectors, or indeed even entire geographical regions, can accumulate large amounts of capital over relatively short periods. However, it is also the case that the converse is true and, as such, the value of continued investment cannot be understated.

Conclusions - The Case for UK manufacturing investment

This paper has sought to provide baseline research for the subsequent series of research projects being undertaken by the Construction Products Association in support of the Industrial Strategy for Construction. It sets out the key themes relevant to the Construction Products Association's contribution to the Strategy and its commitment to ensure that the UK is the favoured location for global firms to invest.

The analysis suggests:

- near-term increases in demand are currently being met by construction product manufacturers without investment in extra capacity, largely owing to existing UK capacity and the use of imports where necessary;
- in the long-term, however, we project an extended period of growth with annual output increasing by more than £25 billion by 2025;
- we expect the construction products industry will face capacity limitations by 2021;
- if growth occurs at a faster rate than projected, constraints on capacity could occur as early as 2016 Q4.

Data on productivity in construction reveal no significant growth since 1998. In the manufacturing sector, despite growth in the decade leading up to the recession of 2008/09, productivity gains since then have been weak. Therefore, further research is required to determine if productivity could be raised through investment in the construction manufacturing supply chain.

Regarding the government's ambition to reduce the trade deficit on construction products and materials by 50% by 2025, near term rises in output have been addressed using domestic capacity where possible and rises in imports. In the longer-term, it is important that there are no avoidable obstacles preventing firms from investing in the UK.

Going forward, the Association recommends further research to determine if the UK's regulatory and political environment is conducive for this investment. Much of the analysis and conclusions in this report will require further examination, and will prompt new methods of analysis; however, collectively the results herein do indicate a need for investment in both UK construction and product manufacturing. It is the role of future research projects to re-examine these findings and identify key issues relating to investment in UK construction.

26 Store Street
London WC1E 7BT
t. 020 7323 3770
f. 020 7323 0307

www.constructionproducts.org.uk