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Increasing offsite construction of affordable housing in Scotland: A Government Report and Next Steps

APSE Online Housing Seminar - 1 October 2020





Background ~ 2018

Scotland needs more affordable homes: *Cheaper – Faster – More sustainable*

20,000 affordable homes are required across the Edinburgh and South East Scotland City Region (ESESCR).

We need to do this in a way which delivers:

- ❖ **Quality and consistency;**
- ❖ **Greater standardisation;**
- ❖ **Faster, affordable,**
- ❖ **... and more sustainable housing;**

09/09/2020 - BBC - Scottish Federation of Housing Associations (SFHA)

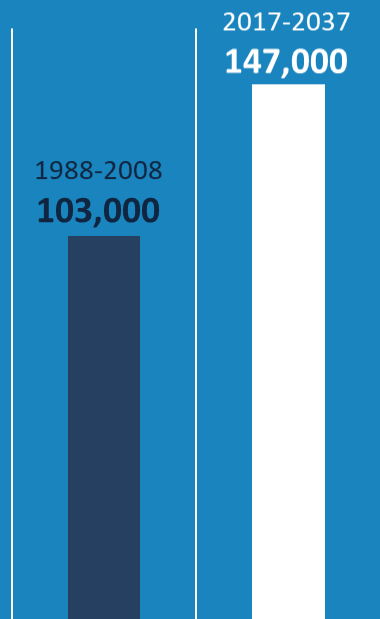
Building affordable housing should be a key part of Scotland's recovery out of the recession caused by the Covid-19 pandemic, a report has said.

Housing and social research charities said new house building creates jobs, improves health and reduces poverty.

Their report said Scotland required 53,000 affordable homes to be delivered between 2021-26.

Demand Growth

40% increase in
new housing supply



We also cannot ignore 2045

Scottish Government Offsite Research

Challenge

The Scottish Government is keen to ensure that the significant investment in the Affordable Housing Supply Programme demonstrates best value. There is evidence that offsite housing offers significant benefits in speed and cost, quality, environmental performance and health and safety. However, uptake remains at relatively low levels.

Project

This project seeks to provide the affordable housing sector with evidence allowing it to reach a more consistent and coherent policy position for offsite construction. If evidence supports a more pro-active use of offsite then the project aims to deliver a step change in the volume of new housing being delivered through offsite methods by identifying effective government policy options and procurement systems to enable this.

Outcomes

- An evidence base to support new policy and systems;
- Evaluation of current market capacity and any new infrastructure required for growth;
- Co-design of effective government policy options.

Support

- Project Duration - Nov '18 – Feb '20



Scottish Government
Riaghaltas na h-Alba
gov.scot

CONSTRUCTION
SCOTLAND
INNOVATION
CENTRE

 Scottish Enterprise



The Research Report ~ *Published* January 2020

1. **Research to map the benefits of offsite construction** for affordable housing in Scotland;
2. **A study to understand the current and future capacity of offsite construction** to overcome any barriers;
3. **Series of co-design workshops with key stakeholders** to realise the potential contribution offsite construction can make to the future of affordable housing in Scotland.

Download:

<https://www.cs-ic.org/library/increasing-offsite-housing-construction-in-scotland-an-evidence-base-to-support-new-policy-and-systems/>



Affordable Housing



Analysis of 3,500 scientific documents

Offsite Construction



Review of 500 academic publications

Expert Interviews



- Offsite construction
- Provision of affordable housing

Desktop Study



Offsite construction sector in Scotland:
Productivity and Growth

Case Studies



Offsite Housing Projects in Scotland

Co-Design Workshops

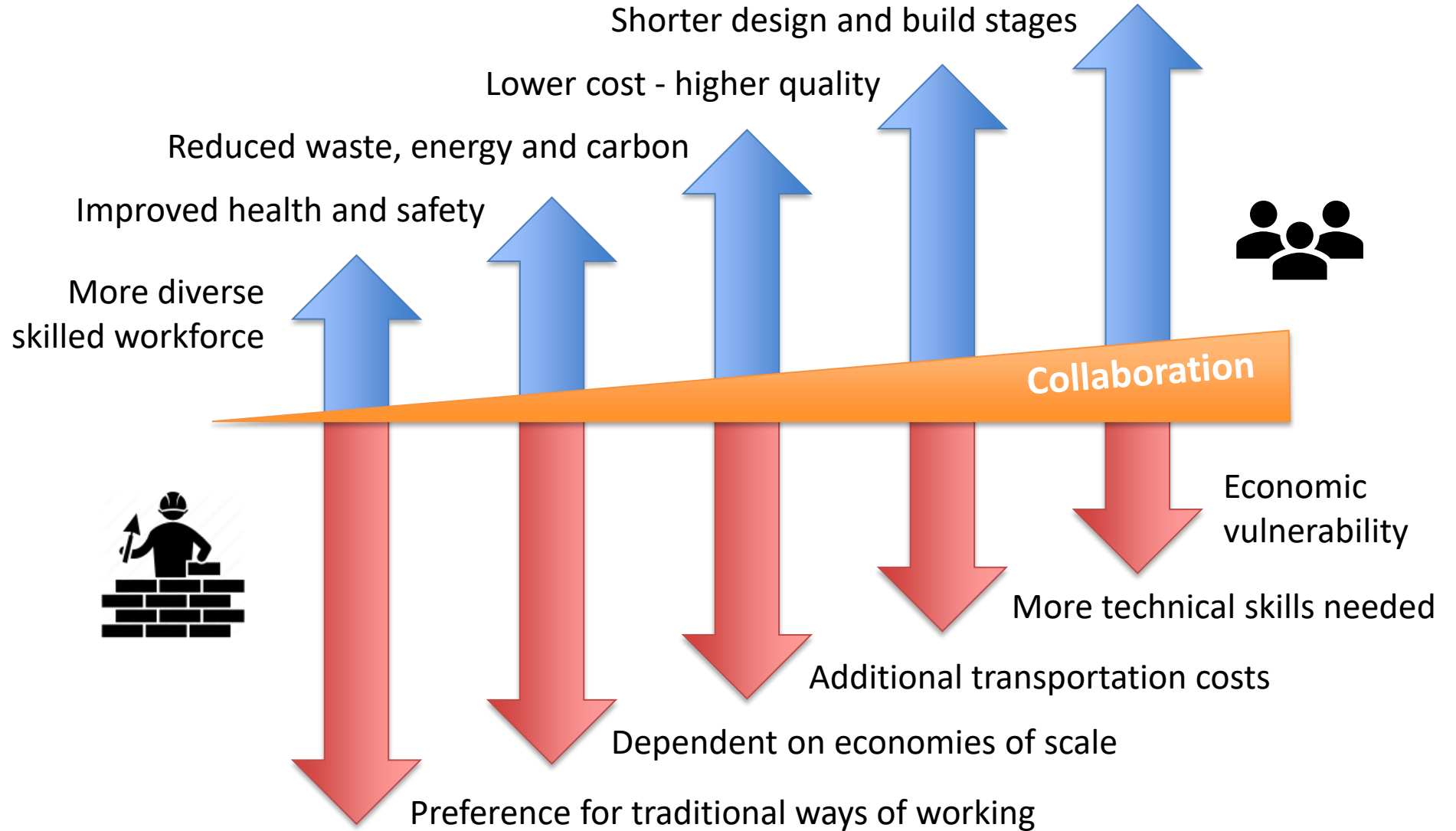


Key stakeholders involved in the delivery of affordable housing in Scotland



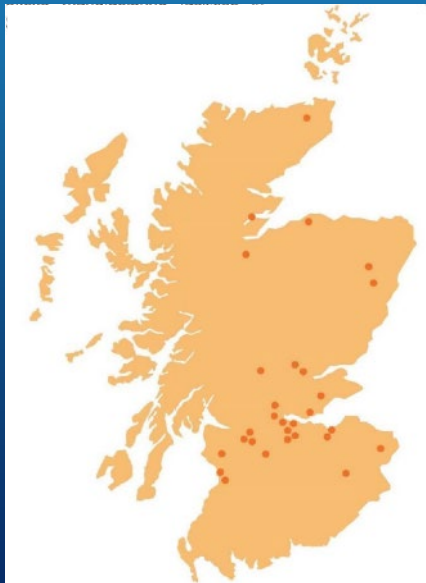
1. Mapping the Benefits of Offsite

Benefits





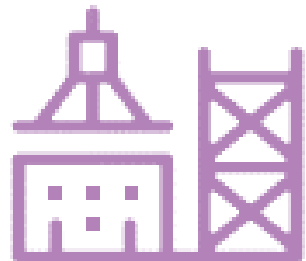
Present and Future Capacity



2. Scotland's Capacity

- 33 identified companies manufacturing offsite products in Scotland and 19 sub-assembly suppliers:
 - ❖ 75% use timber;
 - ❖ 15% steel;
 - ❖ 10% concrete components;
- Annual turnover projected to rise by 3.5% p.a.;
- By 2023 employment in the sector projected to rise by 2%;

Increase in turnover relative to employment reflects the productivity gains secured by the sector over the past 5 years.



11 companies expect to increase factory capacity



85% of the products sourced from suppliers in Scotland



86% of waste materials recycled



Extra capacity provides 14,152 additional homes p.a.



3. Co-design Workshops with Key Stakeholders

In order to realise the potential **benefits** the co-design workshops found any future development of affordable housing by the offsite sector in Scotland would need to be **delivered** by:

Realizing the Potential Benefits

Hamilton

Edinburgh

Inverness

Glasgow

Collaborative approach to **Procurement**

Shift to **Design for Manufacture**

Government assisted capital **investment**

Creating a **Pipeline** Of **demand**

Deploying **Innovative business models**

Whole-life cost approaches

Digital technologies

Better dissemination of offsite construction experiences

Offsite **skills** training



Main Recommendations

Create a clearly articulated national strategy to set out the future direction of travel.

This strategy should be seen as a vehicle which contributes to the targets that Scottish Government has set for net-zero carbon, zero waste and the circular economy.

The Proposition

A BLUEPRINT

... for Scottish-wide Public Sector Procurement of Affordable Housing



Factory Assembly



Panelised Systems



Modular Volumetric



Sub Assembly/ Hybrid

- ❖ **Collaborative approach to procurement**, rather than the traditional sequential approach;
- ❖ **Whole life-cost approach** to evaluation rather than the traditional initial capital cost business models;
- ❖ Greater **standardisation of house types** and components;
- ❖ Development of a **pipeline of demand** to encourage investment in more productive plant and equipment.



Offsite *is* working ...

Our report provides **evidence** of the potential contribution offsite construction offers to address the challenges faced by the affordable housing sector in Scotland.

Homebuilding Technologies

Early engagement of the contractor (feasibility stage) has delivered innovation in design and cost efficiencies.

The Craigmillar project consists of 194 homes in a regeneration area in Edinburgh. The homes will be built to Silver Active Standard which delivers high levels of energy efficiency with some homes achieving gold standard.

Craigmillar Homes Edinburgh





Housing Minister Kevin Stewart MSP

“Most new homes in Scotland are already built using offsite timber frame systems but we are exploring whether we can improve the system by changing the way we and our partners do things.

We will consider the report’s findings and listen to our stakeholders to help us move to a more efficient, productive system which will also contribute to our ambitious sustainability goals.”

Notice of Conference ~ 2020



Description

Following the publication of the Report on “Increasing offsite housing construction in Scotland: An evidence base to support new policy and systems”, in January 2020, you are cordially invited to attend a conference to discuss the report’s findings and recommendations.

A keynote address will be delivered by Kevin Stewart, MSP Minister for Local Government, Housing and Planning. This is followed by presentations on the report by influencers from major stakeholder organisations. There will be an opportunity to input your thoughts and ideas to drive real change during a workshop session along with other networking opportunities.

An unmissable opportunity to shape the future of Scotland’s housebuilding sector.

Date And Time

Tue, 21 April 2020
09:30 - 16:00 BST
[Add to Calendar](#)

Location

Radisson Blu Hotel
50 High Street
The Royal Mile
Edinburgh
EH1 1TH
[View Map](#)

**To Be
Confirmed**



Project Aims



Edinburgh Home Demonstrator Programme

- Develop a new business model
- Demonstrate this model on c. 1000 homes to net-zero carbon standards
- Inform wider strategy on the greater use of offsite construction to achieve net-zero carbon affordable homes
- Inform the 'decarbonisation' of the Affordable Housing Supply Programme



Collaborative Business Model

“Industry, government and clients should seek to build an alliance aimed at fundamentally changing how we approach the entire process of built asset creation.”

Farmer Review 2016

New Business Model

- Based on collaborative procurement
- Whole-life cost approach to evaluation
- Greater standardisation of components/types
- Pipeline of future development
- Longer, performance-based contracts with benefit sharing



Project Partners



... and other councils/HAs across the wider City Region

Funding from:

- Scottish Government Zero Emissions Heating Fund
- CSIC



OFFSITE SOLUTIONS
SCOTLAND

SCOTTISH
FUTURES
TRUST



Collaboration





Project duration:
2020-2024

July 2020						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Key Project Milestones

- Project start 1 July 2020
- Development pipeline analysis across City Region
- Review of design approaches across City Region – e.g. common components / assess scope for standardisation
- Produce catalogue of components / types
- Procurement strategy
- Detailed net-zero house designs
- Procurement and construction
- Post occupancy monitoring

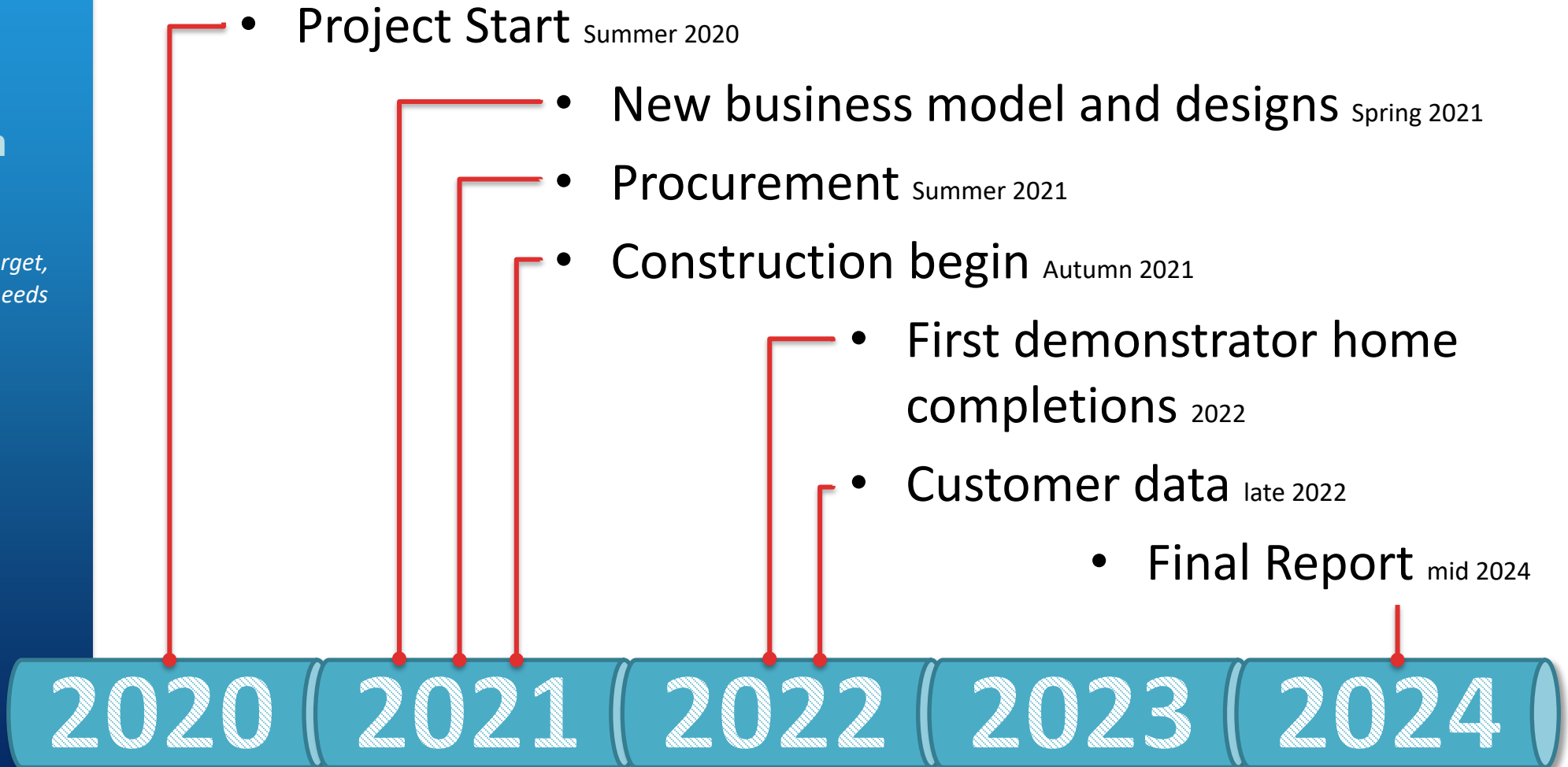


The Proposition

In order to fulfil its 2030 target, City of Edinburgh Council needs a new business model.



Timescales





Transforming Construction

LOCAL

REGIONAL

NATIONAL

INTERNATIONAL

Wider Strategy

- Scottish Government keen to work with stakeholders to develop a wider strategy for achieving net-zero carbon in affordable homes through greater use of offsite construction ASAP
- Programme for Government
- Housing to 2040
- Work will start this autumn

Please let me know if interested



Thank You
for
Listening

In summary, we must change the way we do things ...

To deliver the time, cost, quality and carbon improvements in a new affordable housing programme we need to:

- ❖ Develop a new approach to collaborative procurement and delivery;
- ❖ Standardise house types and whole life performance standards;
- ❖ Share risk and benefits between partners;

... and wrap them in a ***new collaborative business model***





The End

AIMCH - Advanced Industrialised Methods for the Construction of Homes

<https://www.aimch.co.uk/>

VISION

The three-year **Advanced Industrialised Methods for the Construction of Homes (AIMCH)** project aims to tackle all the challenges the housing sector currently faces including skills shortages, an ageing workforce, poor productivity, low output and low affordability while also becoming a major player in the housing sector by identifying and developing industrialised offsite solutions needed to meet current and future house building demands.



BACKGROUND

Government has stated that the UK needs an additional 120,000 homes each year.

The housing sector faces many challenges in meeting this target, including skills shortages, an aging workforce, poor productivity, low output and low affordability. The three-year AIMCH project aims to tackle all these challenges and become a major player in the housing sector by identifying and developing industrialised offsite solutions needed to meet current and future housebuilding demands. These will be trialled on live housing projects, with successful new methods then being commercialised and brought to market in volume.

It is expected that AIMCH will result in new digital design tools, manufacturing advancements, improved near-to-market offsite systems and lean site processes. The ultimate goal of the project is to support the sector by delivering the 120,000 target for the same or less cost than traditional craft methods, which are built 30% more quickly. The project has potential to impact on 35,000 homes being delivered by AIMCH partners across the UK, each year.

TIMELINE



STATISTICS

 **120,000**
Additional homes each year for the same or less cost than traditional craft methods.

 **30%** **Faster build time** **35,000**
The number of UK homes to be potentially impacted by AIMCH partners delivery each year.

