

Levelling the playing field, not Scotland's built environment:

a case for retrofit over demolition?



About us

We are the Chartered Institute of Building, and we stand for the science, ethics and practice of built environments across the world. Everything we do is to improve the quality of life for those using and creating the built environment.

We have a role in the management, leadership, education and development of our industry, guiding and educating our members as they embark on their careers.

Using both the cutting edge of technology and the foundation of hard-earned experience, we train the construction experts of the future. From tools and data for the day-to-day, to degree qualifications for investing in a career. We train and shape workers and organisations who make our industry what it is.

Contents

04	Executive summary
05	Key messages
06	Introduction
80	Take, make & throw away – the challenges of demolition & rebuild
10	First, reduce, then reuse and recycle
11	In support of retrofit
14	Devolving demolition: a policy proposal
16	Policy in practice: reimagining the system
18	Conclusions and recommendations

Executive summary

Urgent policy intervention is needed to decarbonise Scotland's built environment sector at the scale and pace required to achieve net zero targets. Under the current UK tax structure, 20% VAT is applied on most repair and maintenance.

In contrast, most demolition and new build projects are not charged VAT at all, creating a perverse environment where the replacement, rather than the repair and restoration, of Scotland's built environment is financially incentivised. As UK-wide tax reform appears unlikely, could the Scottish Government use its devolved powers to implement a demolition levy to level the unequal playing field that threatens the sustainability of our built environment?

This report considers this question, making a case for the positive impact a demolition levy could have in reprioritising retrofit projects, which proffer wide benefits such as local job creation, reduced construction and development waste, and lowered carbon emissions.



Key messages

- Since over 50% of carbon dioxide emissions come from buildings,¹ the built environment sector has a significant role to play in achieving Scotland's net zero ambitions and tackling the climate crisis
- The UK's current VAT structure financially incentivises demolition and rebuild over renovation and retrofit projects
- Research suggests that if VAT on the sector was reduced from 20% to 5%, it could generate £80-400 million in Scottish GVA and support between 1,500-7,500 full-time equivalent jobs in Scotland.²
- In the absence of tax reform, creative policy options are needed

 and in short order.
- Evidence suggests that a demolition levy, applied in the Scottish context, could catalyse a shift in priority to favour retrofit projects, helping to re-balance the economic scales between retrofitting and rebuilding.
- The revenues from a demolition levy could fund green initiatives that support energy-efficient upgrades to housing, help low-income and vulnerable households cope with home repairs and rising fuel prices, or preserve Scotland's historic building stock.

The Chartered Institute of Building's (CIOB) ambition in developing this report is to stimulate discussion and think creatively about how Scotland's devolved powers can be best leveraged to support the construction industry's important role in realising our collective sustainability goals.

Pretlove, S. and Kade, S., <u>Post occupancy evaluation of social housing designed and built to Code</u> for <u>Sustainable Homes levels 3, 4 and 5</u>, <u>Energy and Buildings (110)</u>. 2016.

² Nelson, G., and McKinney, J., <u>Forum backs Minister's call for VAT cut to boost economy</u>, 23 March 2021.

Introduction

Like the rest of the world, Scotland is facing a climate emergency. The Scottish Government has recognised that the evidence of the crisis is "irrefutable" and that the Scottish people "expect action". In response, the government has outlined ambitious net zero goals across several policy spheres. Housing to 2040 strives to "put housing at the heart of Scotland's green recovery". Further, the National Planning Framework 4 aims to "protect and enhance the assets of each of our places, leaving a positive legacy for future generations".

With over 50% of carbon dioxide emissions coming from buildings, it is evident that the construction sector and wider built environment have a significant role to play in achieving these ambitions and tackling the climate crisis. Professor Tim Ibell, Dean of the Faculty of Engineering and Design at the University of Bath, argues that "given the enormity of the carbon footprint stored up in our built environment, we must re-use and re-mould our existing buildings and assets without recourse to knock them down and build something new".

However, as this report highlights, under the current tax policy, 20% VAT is applied on most repair and maintenance work within the sector. However, most demolition and new build projects are not charged VAT at all.⁸ This structure undergirds a perverse environment where the replacement, rather than the repair

and restoration, of our building stock is financially incentivised. Conversely, most EU member states apply the standard VAT rate to construction, avoiding this perverse environment and keeping a level playing field between rebuild and renovation.9 Indeed, in some nations, like Belgium, reduced VAT rates (6% compared to the standard 21%) are used to incentivise renovation.¹⁰ New build projects are an essential component of the built environment sector and an integral piece of the puzzle in addressing Scotland's housing shortage. However, as has been well argued across the industry,11 the replacement of buildings should not be prioritised over repair. Retrofit buildings will often outperform new in terms of overall lifetime carbon emissions. Research has shown that as much as 50% of the total energy consumption of a building remains embodied in its materials.12

- Scottish Government. The Global Climate Emergency Scotland's Response: Climate Change Secretary Roseanna Cunningham's statement, 14 May 2019.
- ⁴ Scottish Government. <u>Housing to 2040</u>, 15 March 2021., p. 10.
- 5 Scottish Government. Scotland 2045 fourth National Planning Framework draft: consultation. 10 November 2021., p.9
- ⁶ Pretlove, S. and Kade, S., <u>Post occupancy evaluation of social housing designed and built to Code for Sustainable Homes levels 3, 4 and 5, Energy and Buildings 110. 2016., p. 120.</u>
- ⁷ University of Bath. Stop VAT on refurbs and end demolish-and-replace culture, Bath engineering experts say, 29 September 2021.
- 8 Kaminski, I. VAT Chance: Can tax reforms spur a retrofit renaissance?, 6 January 2020.
- ⁹ Global VAT Compliance. <u>VAT rates in Ireland</u>, 25 March 2022.
- Dubois, M., and Allacker, K.. Energy savings from housing: Ineffective renovation subsidies vs efficient demolition and reconstruction incentives, Energy Policy 86. 2015., p. 698.
- ¹¹ Nelson, G., and McKinney, J., Forum backs Minister's call for VAT cut to boost economy, 23 March 2021.
- ¹² Gaspar, P.L. and Santos, A.L., 2015. <u>Embodied energy on refurbishment vs. demolition: A southern Europe case study</u>, *Energy and Buildings*, 87. 2015., p. 287.



Further, retrofit projects offer knockon economic and social benefits.¹³ It has been recognised that retrofit and renovation works can deliver economic stimulus and create local jobs.¹⁴ Retrofit works are labour intensive and grounded within local supply chains; these are ideal projects to maximise employment within the sector, support regional growth and provide opportunities for training and re-training in low-carbon construction skills.

Given these benefits and the sheer volume of embodied carbon in our existing built environment, the industry must be supported to transition to the methods and ways of working that extend its lifespan. Key stakeholders

have called for a "new approach to construction, where the creative re-use and adaptation of existing buildings is the default option, or even incentivised".15

The Scottish Parliament has limited powers over the tax structure, so it is vital that devolved administrations across the UK continue to lobby Westminster for VAT reform. However, this report considers alternative policy levers that may enable the Scottish Government to redress the imbalance created by the VAT structure and better support the built environment to meet our current and future needs, even in the absence of tax reform.

¹³ National Engineering Policy Centre. <u>Decarbonising construction: building a new net zero industry</u>, p. 17.

¹⁴ Federation of Master Builders. <u>Cut the VAT: A proposal for building back better and greener</u>,1 March 2021.

¹⁵ University of Bath. Stop VAT on refurbs and end demolish-and-replace culture, Bath engineering experts say, 29 September 2021.

Take, make & throw away – the challenges of demolition & rebuild

The construction sector's reliance on the linear economy – take, make, and throw away – has been widely problematised. The energy used to build, operate, and demolish buildings makes up 9% of global greenhouse gas emissions and 40% of the world's energy use. To

At present, more than half of the UK's Construction & Development Waste (CDW) goes directly to landfills. Further, there are several knock-on challenges with the creation and disposal of CDW. For instance, demolition itself can cause silica dust exposure, a "public and occupational health issue." Similarly, the incineration of CDW is "widespread" and poses acute risks to public health and the environment. Given these challenges, it is unsurprising that advocates across the built environment sector have called for an urgent transformation in our ways of working.

¹⁶ National Engineering Policy Centre. <u>Decarbonising construction: building a new net zero industry</u>, p. 6.

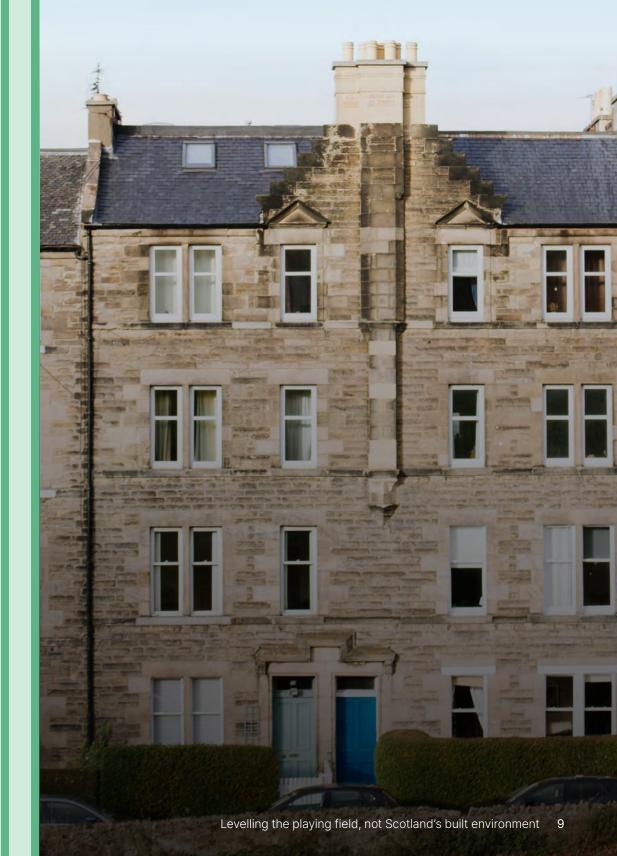
Yeatts, D.E., Auden, D., Cooksey, C. and Chen, C.F., <u>A systematic review of strategies for overcoming the</u>
<u>barriers to energy-efficient technologies in buildings</u>, *Energy research* & *social science* 32. 2017., p. 76.

¹⁸ Ghaffar, S.H., Burman, M. and Braimah, N., 2020. <u>Pathways to circular construction: An integrated management of construction and demolition waste for resource recovery</u>, *Journal of cleaner production*, 244, 2020., p. 1

¹⁹ National Engineering Policy Centre. <u>Decarbonising construction: building a new net zero industry</u>, p. 18.

²⁰ Pretlove, S. and Kade, S., <u>Post occupancy evaluation of social housing designed and built to Code for Sustainable Homes levels 3, 4 and 5, Energy and Buildings</u> (110). 2016., p. 18.

The energy used to build, operate, and demolish buildings makes up 9% of global greenhouse gas emissions and 40% of the world's energy use



First, reduce, then reuse and recycle

The circular economy, underpinned by the 'three R principle,' represents a stark transition from the linear model to a system that aims to reduce waste and minimise the need for new materials, reuse where applicable, and recycle materials where reuse is not possible. As Lesniewska arques, "reducing CDW can decrease environmental and climate change impacts, contribute to sustainable development, and help transition to a circular economy, extending the lifecycle of materials and increasing their value over time."21

Some substantive progress has been made in diverting CDW from landfills with reuse and recycling initiatives. For example, the EU Waste Framework Directive – implemented in the UK through its own waste regulations - set a 2020 target for 70% recycling of nonhazardous CDW. This directive has facilitated a shift within the construction industry that is better focused on "strategies for more sustainable processing and re-use of materials".22 Despite the promise proffered by these recent innovations in recycling construction materials, there remain significant barriers to their widespread adoption. These challenges include limitations in both consumer knowledge and industry experience with reused materials. Additionally, recycled and reused products often have a shorter lifespan, which poses financial burdens to end-users and is not necessarily better for the environment in the long term.²³

Further, demolition professionals have highlighted challenges with finding a suitable market for reused products. One stakeholder explained that "we will not recover them if there is no place for them to go," citing the relatively insignificant cost savings associated with using these materials.24

Currently, there is little to no incentive for the industry or consumers to "innovate in terms of material recovery and processing technologies". 25 Mitigating the volume and negative impact of CDW will require ramping up the reuse and recycling of materials. However, given the challenges with these systems, they must be used in parallel with an industry-wide shift in culture and approach that aims to reduce the amount of waste created in the first place.

²¹ Lesniewska, F., <u>Adding value to construction and demolition waste to achieve sustainable development</u>, 3 February 2022.

²² Ghaffar, S.H., Burman, M. and Braimah, N., 2020. Pathways to circular construction: An integrated management of construction and demolition waste for resource recovery, Journal of cleaner production, 244, 2020., pp. 1-2.

²³ Ghaffar, S.H., Burman, M. and Braimah, N., 2020. Pathways to circular construction: An integrated management of construction and demolition waste for resource recovery, Journal of cleaner production, 244, 2020., p. 6

²⁴ ibid.

²⁵ ibid.

In support of retrofit

There are wide-reaching benefits to prioritising retrofit projects. These run the gambit from environmental to economic and social – covering the 'three p's' of sustainability. The National Engineering Policy Centre (NEPC) suggests that "in many cases, options for retrofit may perform better in carbon terms than in new build options," adding "there will also often be added societal benefits and economic opportunities associated with reuse". 26 Malcolm Fraser, a leading Scottish architect, argues that "since repair is more labour-intensive...a shift in emphasis from new build would create jobs."27

Recent statistics show that 52% of domestic properties in Scotland have disrepair to "critical elements, central to weather-tightness, structural stability and preventing deterioration of the property."28 However, only 1% of dwellings have extensive disrepairs.²⁹ For at least one half of the country, then, repairing and retrofitting their homes is a salient issue. Further, the Construction Industry Collective Voice (CICV) has argued that if the tax rate for repairs and upgrades was lowered, it would stimulate an increased market for upgrades, supporting the postpandemic recovery of the construction and adjacent sectors.30

The continued use of existing buildings is integral to protecting our cultural heritage. A 2017 report published by

the House of Lords recognised that the current VAT structure's support for demolition "provides a perverse disincentive to the retention, restoration and revitalisation of historic buildings, and works to prevent owners from looking after them properly."31 More recently, a report published by the House of Commons Environmental Audit Committee cited the current VAT structure when challenging the UK Government's assertion that it was prioritising retrofit over demolition.32 Creating an economic and policy environment that redresses this imbalance in support of retrofit and restoration will help level the playing field between heritage works and newbuild development.

²⁸ National Engineering Policy Centre. <u>Decarbonising construction: building a new net zero industry</u>, p. 17.

²⁷ Kaminski, I. <u>VAT Chance: Can tax reforms spur a retrofit renaissance?</u>, 6 January 2020.

²⁸ Scottish Government. <u>Scottish House Condition Survey: 2019 Key Findings</u>, 1 December 2020., p. 9.

³⁰ Nelson, G., and McKinney, J., Forum backs Minister's call for VAT cut to boost economy, 23 March 2021.

³¹ Kaminski, I. <u>VAT Chance: Can tax reforms spur a retrofit renaissance?</u>, 6 January 2020.

³² House of Commons Environmental Audit Committee. Building to net zero: costing carbon in construction, May 2022.

The current state of affairs

Evidently, retrofit works play a central role in creating an environmentally, socially, and economically sustainable built environment. Under the current tax structure, however, retrofit works incur higher tax rates than most demolition and rebuild projects.33 0% VAT is charged on new home construction, with a reduced rate of 5% applied to projects that convert buildings into new dwellings.34

Contrarily, for most repair and maintenance work, the standard 20% VAT applies. This year, welcome revisions have been made to the tax structure, which lowered VAT rates for installing and purchasing energyefficient technologies and materials to 0%. However, this reduced rate will only be in place until 2027³⁵ and will exclude many retrofit projects, which will continue to incur 20% tax fees.

Redressing the imbalance

As early as 2003, economists made a case for shifting the balance within the VAT structure to redress the economic inequity that favours demolition and rebuilding. As outlined previously, the tax system "could be used as a powerful financial lever for improving the quality, sustainability and energy efficiency" of our built environment.36 There is a compelling argument that the current tax structure's favour for demolition and rebuild is out of step with the Scottish Government's ambitious climate emergency mitigation measures and Scotland's social and environmental values writ large. If a 0% rate were applied to retrofit works, significant cost savings would be extended, making home upgrades financially feasible for larger portions of the population, including lower-income households.37

Research suggests that if VAT on the sector was reduced from 20% to 5%, it could generate £80-400 million in Scottish GVA and support between 1,500-7,500 full-time equivalent jobs in Scotland.38

The evidence points to a fundamental need to economically reform the sector, incentivise retrofit projects and, in so doing, secure the resulting wide-reaching social, economic, and environmental benefits. However, VAT reform is not within Scotland's devolved powers, and Westminster does not appear ready to implement UK-wide change. It is imperative, then, that we consider the question: how can Scotland use its devolved powers to mitigate the perverse impacts of the current VAT structure on our built environment?

³³ Kaminski, I. VAT Chance: Can tax reforms spur a retrofit renaissance?, 6 January 2020.

³⁴ Homeowners Alliance. Cut VAT on extensions and repairs – our campaign to slash the cost of home improvements, No date.

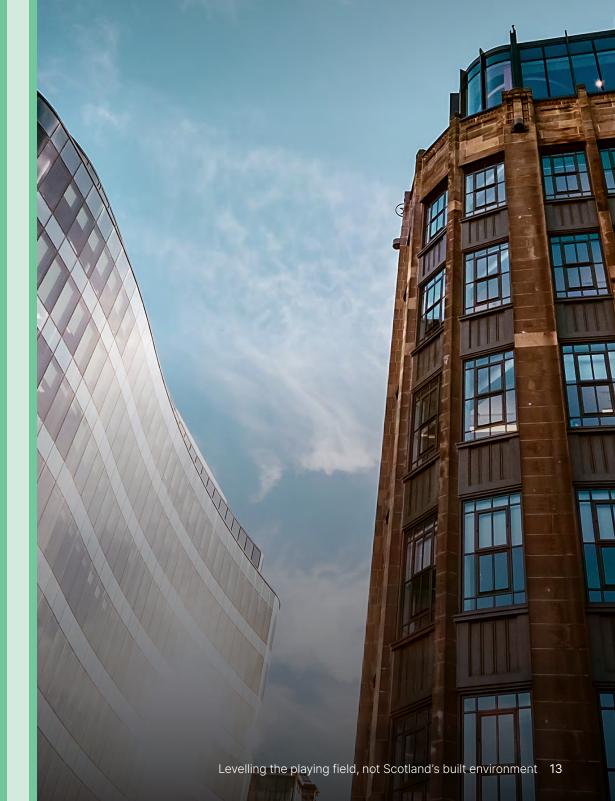
³⁵ HM Revenue and Customs. The Value Added Tax (Installation of Energy-Saving Materials) Order 2022, 23 March

³⁶ Kaminski, I. <u>VAT Chance: Can tax reforms spur a retrofit renaissance?</u>, 6 January 2020.

³⁷ Federation of Master Builders. <u>Cut the VAT: A proposal for building back better and greener</u>, 1 March 2021., p. 4.

³⁸ Nelson, G., and McKinney, J., Forum backs Minister's call for VAT cut to boost economy, 23 March 2021.

Evidently, retrofit works play a central role in creating an environmentally, socially, and economically sustainable built environment



Devolving demolition: a policy proposal

Urgent policy intervention is needed if sector-wide decarbonisation is to be realised as the scale and pace required to meet the Scottish Government's net zero targets. In the absence of tax reform, then, with evidence firmly supporting tipping the scales toward retrofit, creative policy options are needed – and in short order.

Levelling through levies

In the UK, the main drivers for construction waste reduction are realised through legislation and regulation.39 Market-based instruments, including taxes and levies, are "better than laws promoting environmental innovation."40

Could the Scottish Government implement a demolition levy to level the unequal playing field between rebuild and retrofit that continues to threaten our built environment?

Considering the evidence

Regulatory measures have been proven effective in undergirding similar types of sectoral culture shifts in the UK. Landfill taxes and the application of an aggregate levy facilitated a 70% decline in the amount of CDW disposed to landfills in the UK.41 International studies have further demonstrated the efficacy of financial levers in driving change. Calvo et al. examined a variety of policy models engaging levies and economic incentives in mitigating CDW waste in Spain. They concluded that levies were more effective at CDW mitigation than financial incentives, achieving the targeted 30% reduction in CDW two years sooner.⁴² Further, the levy model had the co-benefit of providing a new revenue stream for the government.43

This evidence base suggests that a demolition levy, applied in the Scottish context, could catalyse a shift in priority to favour retrofit

projects. Over the last five years, an average of 993 demolitions have been reported in Scotland annually. These figures represent a very conservative estimate, as provided by local authorities, and likely exclude many private demolitions.44 While the scope and cost of each project will vary, these figures paint a compelling picture of the scale of loss to the existing built environment each year. With the addition of a demolition levy, the Scottish Government could help to re-balance the economic scales between retrofitting and rebuilding. Further, the revenues from these demolition levies could support green initiatives that support homeowners and social landlords to make energy-efficient upgrades to housing, help low-income and vulnerable households cope with home repairs and rising fuel prices, or preserve Scotland's historic building stock.

³⁹ Ghaffar, S.H., Burman, M. and Braimah, N., 2020. Pathways to circular construction: An integrated management of construction and demolition waste for resource recovery, Journal of cleaner production, 244, 2020., p. 6

⁴⁰ Calvo, N., Varela-Candamio, L. and Novo-Corti, I., 2014. A dynamic model for construction and demolition (C&D) waste management in Spain: Driving policies based on economic incentives and tax penalties, Sustainability, 6(1). 2017., p. 417

⁴¹ Lesniewska, F., Adding value to construction and demolition waste to achieve sustainable development, 3 February 2022.

⁴² Calvo, N., Varela-Candamio, L. and Novo-Corti, I., 2014. A dynamic model for construction and demolition (C&D) waste management in Spain: Driving policies based on economic incentives and tax penalties, Sustainability, 6(1). 2017., p. 431

⁴⁴ Scottish Government. Housing statistics: conversions and demolitions, 10 May 2022.

This evidence base suggests that a demolition levy, applied in the Scottish context, could catalyse a shift in priority to favour retrofit projects



Policy in practice: reimagining the system

Assessing the (literal) damage: to repair or rebuild?

Maintaining and improving our existing built environment is a critical component of meeting our sustainability targets, fuelling our economy, creating good jobs, and preserving our heritage. However, 'one size fits all' rarely applies to the construction industry. In some cases, demolition and rebuilding will be the right choice economically, environmentally, and socially. We should not create a policy environment in which it is difficult or controversial to build new buildings. Establishing when this is the appropriate course of action is, however, challenging. For instance, the carbon emissions and CDW impacts of new build projects should be considered against the long-term emissions savings that could be made by building highly dense buildings in central, urban locations that are well served by existing infrastructure.

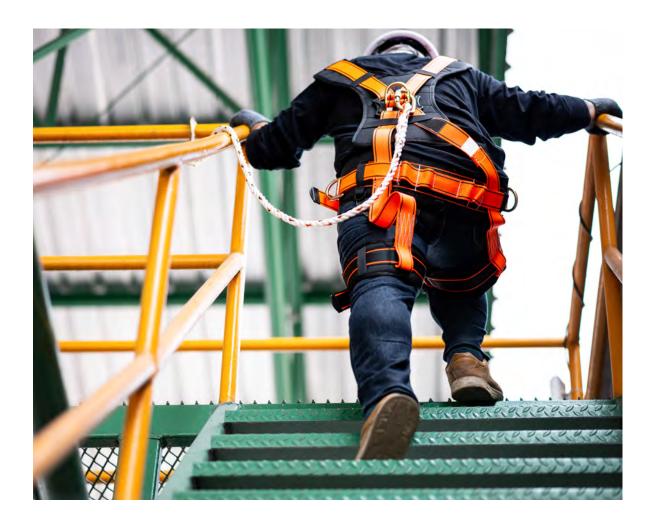
As each case will vary based on the project's individual specifications, the principle of subsidiarity should apply. Therefore, consideration should be given to the role local authorities could play in establishing decisionmaking criteria through which cost/benefit analyses are conducted in place of a blanket national policy. Further, like many other areas of the construction industry, there is a role to be played by suitably qualified property professionals in assessing and charting the most sustainable and practical course of action at the potential end of a building's life.

Two processes may offer solutions to these practical challenges. The first is to engage pre-demolition assessments to establish an unbiased, qualified appraisal of a building's viability, presenting the environmental and economic case for its repair or replacement.

These assessments would support a transition to prioritising retrofit while remaining practically minded and responsive to each construction project's individual needs and unique characteristics. The flexibility of the built environment should be prioritised so that buildings can reach their full life expectancy through being repurposed.⁴⁵ As such, these pre-demolition assessments could further evaluate the adaptability of the new build structures being proposed. Considering and prioritising the future adaptability of today's new build structures will support commonsense-based decision-making whilst also helping to ensure that current and future climate-change targets can be realised.

Further, like many other areas of the construction industry, there is a role to be played by suitably qualified property professionals in assessing and charting the most sustainable and practical course of action at the potential end of a building's life

⁴⁵ National Engineering Policy Centre. <u>Decarbonising construction: building a new net zero industry</u>, p. 17.



In cases where demolition is an appropriate course of action, waste audits conducted by external auditors ahead of demolition could further support the mitigation of CDW. Research has demonstrated that pre-demolition audits are an "effective tool for enhancing CDW management practices."46 In some cases, an internal version of these audits is already in use.⁴⁷ However, the practice has not been widely adopted. Further, concerns have been raised regarding self-regulation. In light of these limitations, there is a need for mandatory auditing systems that do not rely on the industry self-policing but rather engage with specialised staff with the necessary training to provide objective assessments and oversee waste management practices.

Implementing these assessment and auditing systems could further support redressing the imbalance between replacing and repairing buildings created by the VAT structure and support transitioning to the principles of the circular economy. However, these systems will require upskilling industry professionals to understand better CDW practices and the recycling and reuse of materials. CIOB has long championed the professionalisation of the construction sector. Professional bodies like CIOB are well positioned to provide support to government in developing systems and tools to develop the skillset needed for industry professionals to conduct assessments and audits.

⁴⁶ Ruiz, L.A.L., Ramón, X.R. and Domingo, S.G., 2020. The circular economy in the construction and demolition waste sector-A review and an integrative model approach, Journal of Cleaner Production, 248. 2020., p.12.

⁴⁷ Ghaffar, S.H., Burman, M. and Braimah, N., 2020. Pathways to circular construction: An integrated management of construction and demolition waste for resource recovery, Journal of cleaner production, 244, 2020., pp. 4-5

Conclusions and recommendations

Urgent sectoral transformation will require input and engagement from industry practitioners, policymakers, researchers, and professional bodies like CIOB. We put forward these proposals with the ambition to stimulate discussion and think creatively about how Scotland's devolved powers can be best leveraged to support the construction industry's vital role in realising our collective sustainability goals.

Considering the unequal playing field created by today's VAT structure, we urge the Scottish Government to consider the value a demolition levy could bring to the sustainability of our built environment, the economy, and Scotland's construction sector writ large. A demolition levy could go a long way to addressing sustainability challenges and focusing on retrofit rather than demolition. However, it is not a panacea. Addressing the sustainability of the built environment will require coordinated, long-term action. Isolated activities and private market initiatives alone will not be enough to address the scale of the challenge, and a variety of mechanisms will be needed to bring about the culture shift to drive a greener built environment.



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