

A Vision for Low Carbon Construction in Fife

Vision, Values and Focus Areas

Vision

All Fife Council led construction projects to develop new buildings or refurbish existing properties shall enable our objective to reach Net Zero targets by 2045 at the latest.

We will consider the carbon impact of our construction activities, minimising embodied carbon emissions associated with construction materials and operational carbon emissions from our buildings in use. In doing so we aim to be a leading authority in delivering carbon conscious design and construction. We will do this by adhering to the following:

- Ensure no work completed now will negatively impact a buildings ability to transition to net zero operational carbon by 2045.
- Reduce energy consumption through careful fabric design and detailing and selection of energy efficient equipment.
- Wherever feasible, maximise the use of low embodied carbon materials.
- Develop and support local skills and suppliers through a consistent standard of specification.
- Provide healthy and attractive spaces in which people can learn, work and enjoy.
- Consider emerging technologies and processes to ensure appropriate solutions are appraised as the sector and market evolves.
- Support climate change targets through the decarbonisation of our buildings
- Attract external investment to progress our vision.

The vision supports government ambitions by delivering projects which positively contribute towards current targets:

Scottish Government: the Climate Change (Emissions Reduction Targets) (Scotland) Act requires all buildings in Scotland to be net zero by 2045.

UK Government: all buildings in the UK are to be net zero by 2050.

Our vision brings together all our key priorities into one concise list, it makes clear the outcomes Fife Council expects from the projects we construct and substantiates the decisions made to achieve these goals.

Values

Place: We will take a place-based approach to the projects we work on, maximising benefits for local communities.

Ambition: We are committed to scaling up our decarbonisation plans, acknowledging that initially this will be a steep learning curve whilst maintaining a key focus on the long-term benefits.

Pragmatic: We will continue to deliver practical, realistic, and best value solutions following data based and industry best practice approaches, accepting that focus may need to shift as markets and technology develop.

Enabling: We recognise the need to decarbonise our own property estate, in doing so we must implement solutions that don't create barriers to neighbouring buildings which are following similar decarbonisation strategies and we will support local projects which help Fife transition to net zero.

Collaborative: We will build on existing partnership working, sharing experiences, and learning from others to enhance the benefits realised in Fife.

Our values set out the core beliefs that shape the work we do in Property Services, they reflect the behaviours and considerations we promote that will help us to achieve our vision.

Focus Areas

Demonstrate
value for money

Attract external
funds

Share ideas with
others

Reduce demand
for energy

Decarbonise our
energy use

Make better use
of data to inform
decisions

Provide facilities
tailored to local
needs

Implement a
more structured
approach

Improve design
quality

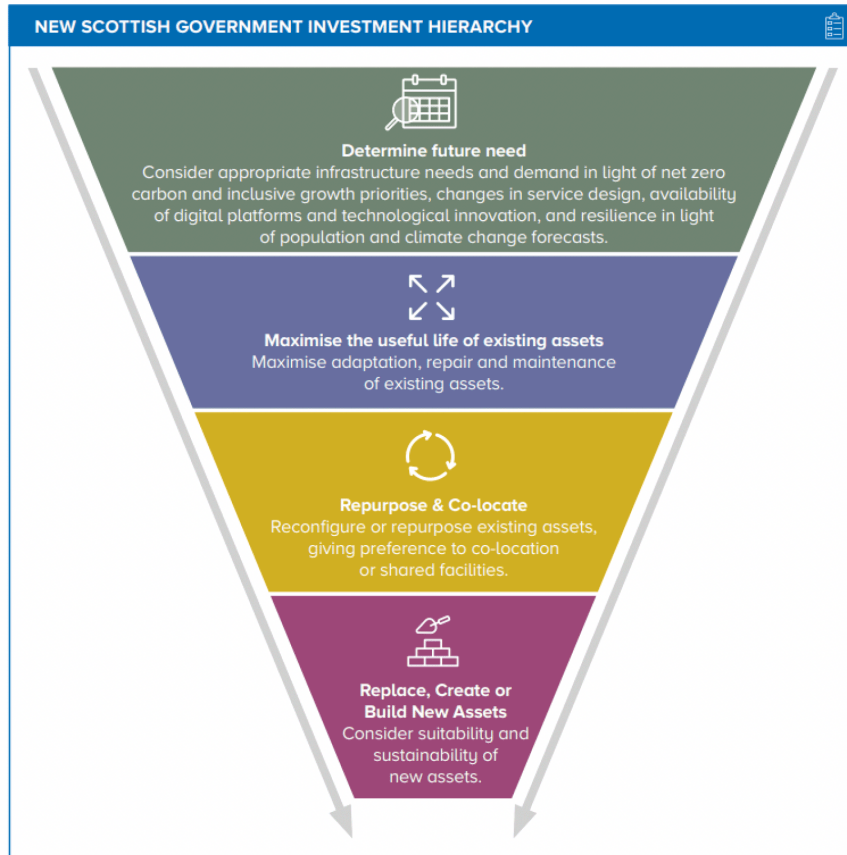
Improve the condition
of and environment
within our buildings

Driving and
embedding
organisational change

Our focus areas are high level categories that we will concentrate on. They reinforce existing good practices and support areas where we can make strategic changes to the way we deliver projects to align with our vision.

Supporting Information

The starting point for any new project should be the Scottish Government Investment Hierarchy, it focuses on reducing embodied carbon from the outset:



Following the investment hierarchy, we first need to determine if it is necessary to retain the building or if it's function could be delivered by other means, for example could staff work remotely or share facilities available elsewhere within the council estate?

If an existing building is utilised to its full potential and provides ongoing essential services in an effective manner, then it should be well maintained to maximise its useful life. As plant and building fabric elements come to end of life these should be replaced with efficient alternatives to enhance the building performance. In the case of fossil fuel heating systems these should be replaced with low carbon heating replacements wherever viable.

If an existing building no longer meets the functional needs of the building users, however it could be reconfigured to do so then this is a preference to demolition and rebuild. Embodied carbon can be offset by retaining as much of the original building fabric as possible during a refurbishment project. If the project can facilitate the wider use of the building by other services or user groups without affecting the core function this should be considered as part of the project planning process. Following a defined 'standard for net zero construction' should be considered to support this project type.

If the only option available is to build a new asset, then achieving net zero shall be considered from the start of the project. Following a defined 'standard for net zero construction' is strongly recommended to support the decision-making process for this project type.

Applicable standards for construction



[Building Regulations](#) – The Scottish Building Regulations must be followed on all projects and they represent a minimum standard in terms of building energy efficiency.

If there is potential on a project to improve upon the Building Regulations standards through enhanced fabric and/or building services performance upgrades where these have minimal impact on upfront costs or follow the recommendations of a whole life cycle costing analysis, then we should progress on that basis. It's more cost effective and less disruptive to improve a buildings performance when undertaking a wider package of works than it is to retrofit energy efficiency solutions in isolation.

Applicable standards for net zero construction



[Passivhaus](#) – Focuses primarily on creating ultra-low energy use buildings that will meet net zero targets, limited consideration for embodied carbon in current version of the standard.



[Net Zero Public Sector Buildings Standard](#) – Focuses on achieving net zero by 2045 by setting standards for energy efficient buildings, also with a focus on embodied carbon and whole life cost outcomes. There are two versions of this standard, one for new builds and the other for refurbishments. The standard focusses on routes to net zero; a project may target net zero on completion of the works or set out subsequent works which should be completed prior to 2045 to achieve the net zero target.

Alternative standards are available and providing they support our vision they can also be used to develop a project. These are all voluntary standards so there is no obligation for full compliance, a pragmatic approach would be to follow and evidence a designated low carbon standard on large projects and simply follow the principles on smaller projects. Frequently on larger projects funding will be conditional on a suitable low carbon standard being followed, to evidence work undertaken to reduce the carbon impact of the project. For smaller projects the additional resources required to evidence these standards are unlikely to present value for money and funding may be better directed to low carbon measures incorporated into the project.

We are not stipulating here what constitutes a large or small project, the Contract Administrator should make a judgement at project inception whether there is added benefit in targeting a low carbon certified design for their specific project. Some things to consider:

- Is external funding sought or approved for the project?
- Is there potential to significantly reduce operational energy consumption?
- Are considerable quantities of new materials required to complete the project?
- Is the building likely to be part of the council estate post 2045?

**If the answer to any of the above questions is 'Yes' then following a certified standard for net zero construction will benefit the project.*

Whole life carbon and cost assessment

To assess the whole life carbon and life cycle costing associated with a project, the following standards and tools may be used, again the decision on whether to adopt one of these methods on a project will depend on the balance between resource time and the overall carbon/cost benefits which can be realised.

As a guide all new builds and deep retrofit projects are likely to benefit from this analysis and if following a certified net zero construction standard it will be a prerequisite for compliance. For larger refurbishments, where the work is likely to have an impact on the running costs of the building, i.e. involving the external fabric or upgrading building services, then these tools will add benefit to the project irrespective of whether a certified net zero construction standard is being followed. For refurbishment works which don't impact on the external fabric or building services then only a whole life carbon assessment should be considered.

Whole life carbon assessment standard

BS EN 15978:2011 Sustainability of construction works - assessment of environmental performance of buildings - calculation method.

[RICS Whole life carbon assessment \(WLCA\) for the built environment](#) – standard framework for calculating the whole life carbon emissions associated with projects.

-

Alternative assessment standards and tools are available and providing they offer a similar level of accuracy to the BS EN 15978:2011 they can be used to develop a project.

Whole Life cycle cost assessment

As well as considering whole life carbon there should be a strong focus on whole life cost outcomes over capital cost prioritisation, operational expenditure for buildings will be 5-10 times as much as the capital cost measured over the life of the asset. Some sample tools / methodologies are listed below for reference:

[Scottish Futures Trust tool](#)

[RICS Lifecycle costing tool](#)