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New Dunfermline Campus: Adaptation

Net Zero Public Sector Buildings Standard, Objective 6
– Approach, learnings and outcomes

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Fife College CLIMATE ACTION

Source: Scottish Futures Trust NZPSBS Document Suite

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The standard pushes projects to:

- Close the energy performance gap
- Reduce the carbon footprint involved during the construction and lifetime of the asset
- Ensure that the buildings improve local communities and the lives of the people in the communities.

- There are a range of routes to compliance including through existing standards like BREEAM and Passivhaus.

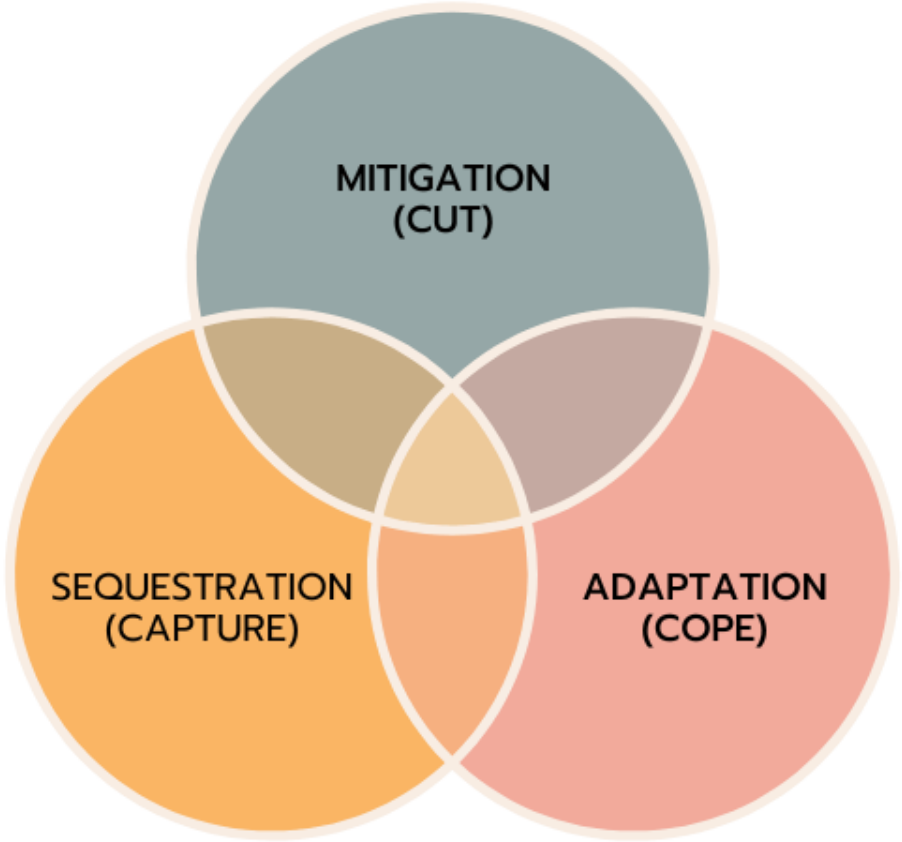
The Project: Fife College Dunfermline Learning Campus

Objective 6 Focus – Climate Adaptation

Adaptation:

"Any action to reduce vulnerability to the actual or expected effects of climate change. This means changing human and natural systems to adapt to climate patterns. For example, planting drought resistant seeds in the face of increasing drought conditions".

Source: UNDP definition of key climate terms



What did we do?

Climate resilience workshop delivered and facilitated by Sniffer, who deliver the Adaptation Scotland Programme:

- Overview of Climate Adaptation risks in Scotland and design elements of DLC.
- Overview of the pre-completed climate change risk assessment for DLC, with the attendees mapping the risks and discussing how this can impact the building and operations.
- Investigating ways to mitigate the risks during construction phase and once the building is in use.

Climate Change hazards & risks identified

Hazard	Risk
High Winds	Damage to building (inc cladding) Falling debris
Increased temperature	Building overheating Wildfires
Intense rainfall	Flooding (surface water) Damage to infrastructure (inc servers)
Decreased rainfall	Drought

- Also needed to consider climate impacts on: Health and Wellbeing of our community, food supply and energy supply.

Outcomes

The campus will have its own climate adaptation strategy and action plan on opening.

Hazard	Risk	Action Taken post-workshop
Increased temperature	Building overheating	Overheating analysis completed with CIBSE high emissions dataset; we know our hot/cool areas and where may be vulnerable to overheating. Data centre will be painted white.
Increased temperature	Roads and pavements softening	Balfour Beatty confirmed with manufacturer the expected softening point for our paved roads/pavements.
Intense rainfall	Flooding (surface water) Damage to infrastructure (inc servers)	Sensors on internal guttering. Drainage modelling completed with climate factors. Data centre will be on a raised platform.
Decreased rainfall	Drought	Rainwater attenuation tanks. Drought resistant plants planned for areas of landscaping. Outdoor education dry rivers and ponds planned.

Benefits

- NZPSBS is a useful mechanism for ensuring environmental objectives remain on the agenda; supporting ambition realisation.

- Balfour Beatty and Adaptation Scotland are collaborating to investigate how best to roll out climate resilience training in their organisation & wider construction industry.

- Co-benefits of climate adaptation with other environmental aspects.

Lessons learned

- Climate resilience workshops would be most effective during RIBA stage 3. Or, concept design stage of NZPSBS.
- This is also something to consider when planning retrofit works!

- There is a place for climate change adaptation in the NZPSBS Objective 1 response.

Lessons learned (cont'd)

- Legislation around designing buildings and infrastructure is not going to keep pace with the rate at which the science is informing us about climate change.

- Adaptation can be tricky to understand, and difficult to know what practicalities you need to consider.

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Thank you

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