MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Submission Form

Building for Climate Change

1. Contact details (optional)

Name:	Joanne Duncan
Company/organisation	Life Cycle Association of New Zealand (LCANZ)
Email address:	secretary@lcanz.org.nz

2. Are you making this submission on behalf of a business or organisation?

☐ No

☒ Yes (please tell us which Company/Organisation you are making this submission on behalf of)

Life Cycle Association of New Zealand (LCANZ)

3. Would you like to:

Remain anonymous in the published consultation summary report	☒ No	☐ Yes
Receive a copy of your own submission	☐ No	☒ Yes
Receive future updates on Building for Climate Change programme	☐ No	☒ Yes

4. Are you willing to be contacted in relation to your submission if MBIE has questions about your response?

☐ No ☒ Yes

5. The best way to describe your role is:

☐ Architect	☐ Building owner	☐ Geotechnical Engineer
☐ Building Consent Authority/Officer	☐ Electrician	☐ Structural Engineer
☐ Builder	☐ Engineer – other	☐ Plumber/Gasfitter/Drainlayer
☐ Building product/material supplier	☐ Fire Engineer	

☒ Other: Association

To submit this form via email:
Once you have completed the form, you can email it to BfCC@mbie.govt.nz, with "Submission" in the subject line.

To submit a print copy of this form:
You can post or courier your submission to:

Via Courier:

Building System Performance
Ministry of Business, Innovation and Employment
Building for Climate Change Submission
15 Stout Street,
Wellington 6011

Via Post:

Building System Performance
Ministry of Business, Innovation and Employment
Building for Climate Change Submission
PO Box 1473
Wellington 6140

Overarching approach of the Building for Climate Change programme

6. Do you agree or disagree that the Building and Construction Sector needs to take action to reduce emissions?

☐ Strongly disagree ☐ Disagree ☐ Neither ☒ Agree ☐ Strongly agree

Please tell us why.

Following New Zealand's commitment to have net zero emissions by 2050, the construction sector needs to do its part. Moreover, with the right investment including skills development, New Zealand could show global leadership in using life cycle thinking when approaching climate change issues.

7. What support do you think you or your business would need to deliver the changes proposed in the frameworks?

LCANZ represents a wide range of businesses and individuals that believe that the life cycle approach is key to recognising risks and opportunities.

Support would be needed in training and development of Life Cycle Assessment (LCA)and in recognition of LCA specialists in order to make this discipline mainstream. This could be via dedicated professional training and/or specific LCA papers available within the tertiary education system. Subsidised placement of LCA specialists in architectural and construction businesses would add a resource and develop LCA knowledge in the businesses, training from within.

An MBIE recognised LCA accreditation, would bring certainty to industry.

8. Are there any barriers that are currently preventing (or discouraging) you, or your business, taking action to reduce emissions?

☐ No ☒ Yes

Please identify the main challenges.

The understanding and recognition of the value of life-cycle thinking in the building industry is limited and mostly only from larger corporations and associations.

9. Do you think the Building for Climate Change work programme should include the following building classifications?

	No	Yes
Housing	☐	☐
Communal Residential	☐	☐
Communal Non-Residential	☐	☐
Commercial	☐	☐
Industrial	☐	☐

If you have indicated that you believe one, or more, building classifications **should not** be included, please tell us why

Framework: Transforming Operational Efficiency

10. Do you agree or disagree that the Building for Climate Change work programme should include measures to improve the operational efficiency of buildings in New Zealand?

Strongly disagree	Disagree	Neither	Agree	Strongly agree
☐	☐	☐	☒	☐

Please tell us why.

The entire life cycle of a building should be considered as a whole including both embodied and operational impacts. This should not be addressed separately, as there are trade-offs between them. For example, a material with higher embodied carbon could provide much larger overall emissions during operation compared to another material with lower embodied carbon.

11. The Framework proposes that operational efficiency requirements tighten in a series of steps to reduce emissions in the Building and Construction Sector, with the requirements for each step published at the outset and the final step being reached by 2035.

Do you support a gradual introduction of operational efficiency requirements, using a stepped approach?

☐ No ☐ Yes

12. Do you think the timeframe is appropriate?

☐ Yes ☐ No, it's too short ☐ No, it's too long

Please tell us your ideal timeframe if it's not by 2035.

13. The Framework proposes that a number of building types will be exempt from operational emission reduction requirements.

Do you agree or disagree with the proposal to exclude the following from operational efficiency emission reduction requirements?

	No	Yes
Outbuildings	☐	☐
Ancillary buildings	☐	☐

Please tell us why.

Approach

14. The Framework proposes that operational efficiency requirements will only apply to new buildings initially with further work to look at requirements for existing buildings being undertaken at a later date.

Do you support this approach?

☐ No ☒ Yes

Please tell us why.

We support this approach, noting that to reach net zero carbon by 2050, existing buildings also need to be considered. Environmental impacts beyond carbon should also be considered.

15. Do you support a limit on emissions from fossil fuel combustion to operate buildings (e.g. for space and water heating)?

☐ No ☒ Yes

Please tell us why.

We support this approach to avoid locking in fossil fuels for operation, while noting that wider environmental impacts should be considered across the whole life cycle of the building.

16. Do you think that new Thermal Performance requirements based on heating and cooling demand should be introduced to support increased operational efficiency of buildings?

☐ No ☒ Yes

Please tell us why.

We support this approach while noting that wider environmental impacts should be considered across the whole life cycle of the building. Efficiency improvements will bring many benefits, but we must ensure new requirements don't have unintended consequences on other impacts.

17. Detailed requirements for the efficiency of fixed services (such as heating and cooling systems, artificial lighting, hot water systems and appliances, ventilation systems etc) are not currently set out in the Building Code.

Do you think that Services Efficiency performance requirements should be introduced to support increased operational efficiency of buildings?

☐ No ☒ Yes

Please tell us why.

We support this approach while noting that wider environmental impacts should be considered across the whole life cycle of the building. Efficiency improvements will bring many benefits, but we must ensure new requirements don't have unintended consequences

on other impacts.

18. The framework proposes that there are requirements for the plug loads for large buildings*, but not small buildings. Do you support this approach?

(*Large and small buildings as defined in the framework scope section)

☐ No ☐ Yes

Please tell us why.

To be able to make this decision, life-cycle information should be used. If the plug loads for small buildings are not significant, then they could be excluded to focus efforts on other areas where more impact can be created.

19. The Framework proposes that new buildings will not be required to include onsite renewable energy generation or energy storage capacity. Do you agree or disagree with this proposal?

Strongly disagree	Disagree	Neither	Agree	Strongly agree
☐	☐	☐	☐	☐

Please tell us why.

20. The Framework currently proposes to <u>exclude</u> the following elements from the Building for Climate Change work programme. Which do you think should be included or excluded?

	Should be included	Should be excluded
Electrical appliance efficiency	☐	☐
On-site collection and storage of water	☐	☐
On-site waste water treatment	☐	☐

Please tell us why.

21. Buildings need to provide suitable indoor environmental quality (IEQ) for good occupant health and wellbeing outcomes. The Framework identifies the following critical IEQ parameters:

- Air temperature
- Relative or absolute humidity
- Ventilation rates
- Surface temperature
- Hygienic surface temperature (avoidance of mould)
- Daylight provision

If there are any additional elements that you think should be considered, please record them in the comment box below.

22. The Framework proposes that the Thermal Performance energy use intensity and services energy use intensity are considered during the consent application process, and when a Code Compliance Certificate is applied for.

Do you think this would impact you or your business/organisation?

☐ No ☐ Yes

Please tell us why.

23. If there are any additional tools or support that you think you would need to implement this requirement, please tell us in the comment box below.

Several of the requirements under this framework might not be common knowledge for the current New Zealand providers, especially for SMEs.

LCANZ recommends training and upskilling on life cycle thinking and assessment. This should be available and started well before the implementation of the programme to make sure people skills are not a bottleneck.

Framework: Whole of Life Embodied Carbon Emissions Reduction

24. Do you agree or disagree that the Building for Climate Change work programme should include initiatives to reduce whole-of-life embodied carbon in New Zealand buildings?

Strongly disagree	Disagree	Neither	Agree	Strongly agree
☐	☐	☐	☒	☐

Please tell us why.

Similar to the response on Transforming Operational Efficiency Framework, the entire life cycle of a building should be considered as a whole including both embodied and operational impacts. This should not be addressed separately, as there are trade-offs between them. For example, a material with higher embodied carbon could provide much lower overall emissions during operation compared to another material with lower embodied carbon.

To meet our emission reduction goals, a key objective of the framework is to increase building material efficiency, and reduce construction waste.

25. What measures, if any, do you think should be put in place to increase building material efficiency? (Select all that apply)

☒ Update regulatory performance requirements to ensure they are appropriate

☒ Incentivise 'lean design'

☒ Remove barriers to the reuse of construction materials

☐ Other (please specify)

The design process is key to supporting the reduction of impacts across whole of life, and should have consideration for wider environmental life cycle impacts. Similarly, enabling the appropriate reuse of construction materials is important, but the whole of life impacts should be considered to avoid unintentional consequences.

26. What measures, if any, do you think should be put in place to reduce construction waste?

27. Using low carbon construction materials and products is identified as another option to reduce whole-of-life embodied carbon emissions.

How could we encourage the use of low carbon construction materials?

Increase the understanding of life cycle thinking in the construction sector, at all levels of the organisation. Similar to health and safety, there could be regulations, but also

management processes, information targeting different audiences (from builders to board members).
LCANZ has resources available, but we rely on members funding our dissemination initiatives. Collaborative projects (associations, industry, government, etc.) have the potential to create effective messaging, but that requires funding.

Some of our members suggested that mandating the use of EPDs within government procurement would encourage their use in the wider industry.

The Framework proposes introducing reporting requirements for whole-of-life embodied carbon in buildings, followed by a cap on whole-of-life embodied carbon for new building projects.

28. Would you support a cap on whole-of-life embodied carbon for new building projects?

☒ Yes ☐ No

Please tell us why.

Yes, however, the measurement should take a whole-of-life building approach (embodied and operational carbon) to ensure one selection is not detrimental to the other.

Furthermore, LCANZ recommends considering metrics beyond carbon, as there might be trade-offs between environmental impacts. The implementation could be gradual, but MBIE could already signal the addition of caps on other indicators (e.g. embodied water), even if those will be applied in the long term.

29. Do you think a data repository of embodied carbon from buildings should be established?

☒ Yes ☐ No

Please tell us why.

LCANZ recommends the creation of a national data format standard based on international best practices. LCANZ's Best Practice Working Group can assist.
This would support a national digital database of not only carbon, but also other environmental impacts. This could be used by multiple user interfaces, especially BIM and LCA software.

30. If a data repository was established, do you think this information should be able to be accessed by the public?

☒ Yes ☐ No

Please tell us why.

Most of the current life-cycle data available is in EPD format, which is public by default. Having the data public, or freely available under request, would provide transparency and credibility to the process.

31. Which, if any, of the following factors would make it difficult for people to report the whole-of-life embodied carbon of new buildings, and why?

☒ Lack of an agreed methodology

☒ Inadequate data quality and availability

☐ Lack of appropriate tools or software

☒ Administrative burden on businesses

☐ Other (please specify)

32. What support, if any, do you think will be needed to make reporting embodied carbon a standard part of the design and construction process for every new building project in New Zealand?

A key factor is accessibility of the required skills. LCA professionals should be recognised and available to the building sector. As already described above, early training, subsidised industry placements, recognised LCA accreditation, are some actions that can start now to make the sector ready for the future.

The other key factor is the availability of good, New Zealand-based data that is accessible to all.

The framework proposes that reporting of whole-of-life embodied carbon for buildings would be carried out as part of the building consent application process.

33. What impact do you think this proposal will have on the Building and Construction sector?

34. What additional tools or support would be needed to implement this requirement?

It is imperative that the entire industry uses the same framework and methodology, not necessarily the same tool or software.

Quality data relevant to New Zealand should be available. LCANZ recommends creating a national approach to data format. Estimated, but standard, data to quantify environmental impact of modules A4 (Transport to customer) and A5 (Construction/Installation) for imported products will also be needed. LCANZ also recommends making modules A4 (Transport to customer) and A5 (Construction/Installation) of EPDs mandatory in the assessment. This would ensure environmental impacts from imported products are quantified.

Some LCANZ members also recommend the addition of modules B (Usage stage) and D (Reuse-Recovery-Recycling potential) of EPDs for a Cradle to Cradle approach. This would take into account the emissions related to maintenance and replacement of shorter-lasting materials and acknowledge that some materials are infinitely recyclable. Note that the Module D impacts should not be considered within the life cycle of the building, but rather as part of the next life cycle.

35. Do you think that requirements for embodied carbon calculations should only include the initial building life cycle stages (product and construction stage)?

☒ No ☐ Yes

Please tell us why.

A whole of life approach is needed to ensure all the trade-offs are accounted for. Otherwise, some materials and approaches might be favoured, and those could potentially generate larger emissions during the other stages.

Some of our members note that a very complex calculation might make the process too complex for the return in carbon reduction. However, before dismissing stages in the framework, robust life-cycle data on a series of scenarios should be analysed and shared in future consultations.

36. The Framework proposes limiting the type of building components that would be included in an embodied carbon assessment, excluding components with lower emissions (such as internal fittings).

Do you agree with this proposal?

☐ No ☐ Yes

Please tell us why.

37. Do you think that reporting on, and ultimately capping, embodied carbon should apply to new building projects only, not refurbishment or demolition projects?

☐ No ☐ Yes

Please tell us why.

38. The Framework proposes that a simplified embodied carbon calculation tool could be used for small buildings but more detailed calculations would need to be provided for large buildings*.

(* Large and small buildings as defined in the framework scope section)

Do you agree with this proposal?

☐ No ☐ Yes

Please tell us why.

39. Any other comments on the proposed frameworks?