DEV32 for Minor development Applications

Policy DEV32 of the Plymouth and South West Devon Joint Local Plan (JLP) requires all development to make a contribution to the 50% carbon reduction target by 2034, against a 2005 baseline.

The checklist below should be completed as part of the Design and Access Statement, and used as a guide for applicants bringing forward minor development proposals, providing prompts that can help achieve greater carbon savings. The details contained within the checklist will assist Development Management Officers to understand how a proposal is positively contributing to the carbon reduction requirements of DEV32. The checklist should be seen as an opportunity to promote the carbon reduction benefits of a proposal, using a standard format to assists decision makers. Applicants are invited to provide supporting evidence from external data sources and guides.

Dev32 carbon reduction checklist for minor applications		
Resource minimisation evaluation	Data sources/guides?	Response
What new materials are being used to create the new building? How have materials been considered on the basis of carbon saving? How has the carbon cost of materials been calculated (please provide references to carbon calculators or external guidance)? What alternatives to concrete (if applicable) have been considered? Are you proposing to use local materials from local providers? If so, what materials are being sourced locally? Is timber being sourced from sustainable sources? If so, what accreditation scheme is being used?	WRAP embodied carbon in construction guide Carbon footprint of Building Construction Tackling embodied carbon in buildings These resources provide some basic assumptions about the carbon cost of different building materials.	

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Resource minimisation evaluation	Data sources/guides?	Response
Climate resilience evaluation		
Has the proposal been positioned and designed to make best use of solar aspect - has orientation and positioning influenced the proposal? How has passive solar gain been incorporated into your design? Please provide details of building orientation, glazing and built form details. How has the development been designed to avoid overheating? How has the development been designed to be resilient to high rainfall or flooding (inland or coastal)? Is water being re-used or collected onsite? What Biodiversity gains are being secured by the proposal? The Committee on Climate Change have recommended ceasing connection to mains gas for cooking and space heating from 2025 for domestic buildings. What energy/technology will be used for cooking and space heating, and what alternatives were considered?	Resilience in building design Avoiding overheating in new homes	
Energy hierarchy		
How has energy demand been reduced through building fabric design?	https://www.carbontrust.com/resources/building-fabric-guide	

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Resource minimisation evaluation	Data sources/guides?	Response
Will building regulations thermal efficiency standards be exceeded (see below for details)? If so, by how much? What energy efficiency measures are being used in the building? What renewable energy technologies were considered at the design stage of the project? What renewable energy technology is being used in the proposal, and why were specific technologies not chosen? Is the proposal equipped to install electric vehicle charging points either immediately or at a future date?		

Required energy efficiency standards taken from 2013 (Incl. 2016 amendments) Part L1a Building Regulations

Table 2 Limiting fabric parameters

Roof	0.20 W/(m²·K)
Wall	0.30 W/(m²·K)
Floor	0.25 W/(m²·K)
Party wall	0.20 W/(m²·K)
Swimming pool basin[1]	0.25 W/(m²·K)
Windows, roof windows, glazed roof-lights[2], curtain walling and pedestrian doors	2.00 W/(m²·K)
Air permeability	10.0 m³/(h·m²) at 50 Pa

Notes:

1. Where a swimming pool is constructed as part of a new building, reasonable provision should be made to limit heat loss from the pool basin by achieving a U-value no worse than 0.25 W/(m²·K) as calculated according to BS EN ISO 13370.
2. For the purposes of checking compliance with the limiting fabric values for roof-lights, the true U-value based on aperture area can be converted to the U-value based on the developed area of the roof-light. Further guidance on evaluating the U-value of out-of-plane roof-lights is given in *Assessment of thermal performance of out-of-plane rooflights*, NARM Technical Document NTD 2 (2010).

DEV32 and Replacement Dwellings

For replacement dwellings to demonstrate that they can achieve a carbon reduction over the lifetime of the house, it is useful to understand the impact of releasing embodied carbon from the existing dwelling, and how this contributes to the overall carbon cost of the project. Comparison studies have shown that to knock down and replace a dwelling – without reusing any of the materials onsite – takes up around 10 times as much carbon as retrofitting the existing building. Renovating and retrofitting energy efficiency measures are also more cost-effective that demolition and rebuilding.

Most comparable studies use a 100-year time frame to calculate the carbon cost of a building – this includes both the carbon embodied in the structure and the use of the dwelling by the occupants. It is very difficult for any replacement dwelling to generate a net carbon reduction given the loss of embodied carbon from the original structure, regardless of the energy efficiency and energy supply of the replacement dwelling, and that is because the vast majority of carbon cost comes from the construction, and not the use, of a building.

An energy efficient building using energy from one of the mainstream providers will generally emit around 500-700kg per annum per person. This can be reduced significantly by changing energy supplier to a provider who only suppliers certified renewable energy. A poorly insulated home that leaks heat from windows and doors can expect to use twice the amount of energy.

The average amount of carbon embodied within an existing building is likely to be somewhere between 50-100 tonnes, depending on the size of the dwelling and the type of materials used in construction. In addition to the carbon cost of the demolition of an existing building, a replacement dwelling will incur an additional carbon cost in the construction of the new building, typically this will exceed the carbon cost of the existing dwelling due to an increase in building footprint. It is very difficult to achieve an accurate estimate of how much carbon is embodied within a building, as there are so many variables to take into account. As such, the questions below are designed to assist applicants and developers to consider the carbon costs associated with replacing an entire dwelling with a new build structure.

If a dwelling is proposed to increase in floorspace, by far the most carbon efficient method is to extend an existing building whilst renovating and retrofitting the adjoining original structure. The checklist below has been created to assist applicants in reducing the carbon cost of their project.

What is the approximate increase in floorpsace proposed by the replacement dwelling?	
How could this additional floorspace be achieved by renovation and extending the existing dwelling?	
Are there any constraints that are likely to prevent renovation and extension as a reasonable alternative?	
If a dwelling is proposed for demolition and replacement, what materials are proposed to be reused within the proposal site? Please list each type of building material and the approximate amounts that are to be reused onsite.	
If materials cannot be reused within the proposal site, how else are they proposed to be reused or recycled? Please list each material type and how/where it is proposed to be reused or recycled	
What energy efficiency improvements can be retrofitted to the existing dwelling to improve building performance?	
What will be the approximate carbon cost of using the replacement building per annum?	
Does the current building have an up to date EPC? If so, what thermal efficiency improvements are identified as part of the EPC?	
What is the approximate carbon cost of using the existing building per annum? This could be reduced significantly be switching to a provider of certified renewable energy. https://electricityinfo.org/carbon-calculator/#calculator	
What biodiversity gains are being secured from the proposal that could not be achieved through renovation alone?	

What planning benefits are being secured by replacing the dwelling that cannot be achieved by renovation, retrofitting and extending of the original building?	