

DEVELOPMENT OF ENERGY AND CARBON PERFORMANCE METRICS FOR HOUSING DESIGN AND REGULATIONS

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Designers and regulators are faced with an array of energy and carbon metrics when seeking to quantify the environmental performance and sustainability of buildings. This paper reviews metrics for the energy and carbon performance of whole buildings and individual building elements. Methodologies for rating window energy performance are compared with methodologies for rating the energy performance of opaque elements, in the context of developing a coherent and consistent methodology for rating the energy performance of all elements of the thermal envelopes of New Zealand houses. Finally, a simulation analysis is undertaken to determine the relationship between whole building energy performance and the energy performance of building elements, in order to assess the adequacy of design methods that consider the energy performance of building elements but not whole building energy performance.

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