

Building Code Insulation Requirements for Residential Construction

The Building Code Clause H1 Energy Efficiency is defined in New Zealand Standard 4218:2009. Residential construction categories are changed to:

1. Any Wall Type; eg (timber framed structure with an various types of exterior cladding), or
2. Solid Timber Walls (such as "Lockwood" type system), or
3. High Thermal Mass Walls (concrete or masonry)

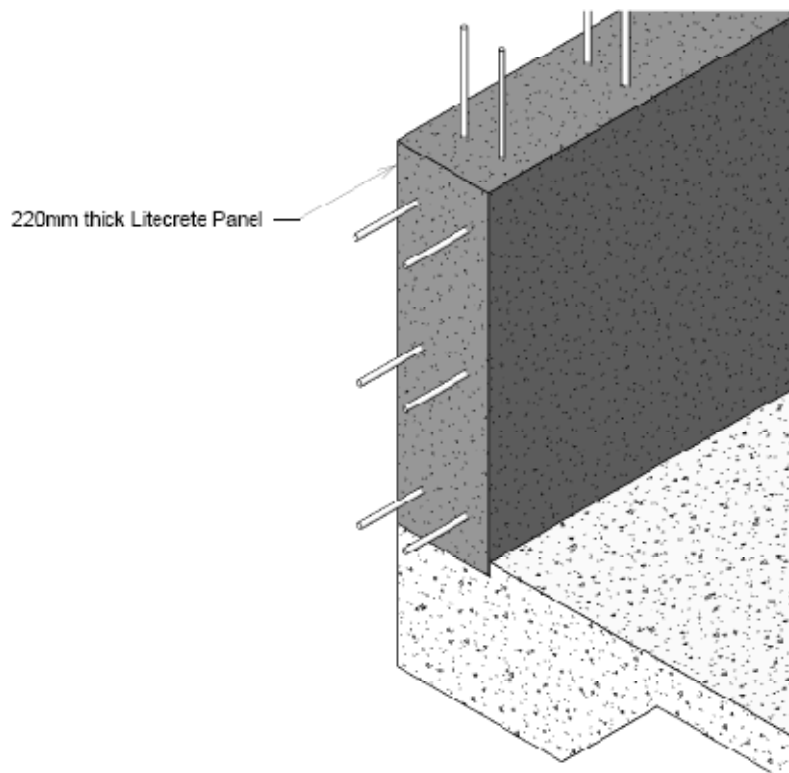
Litecrete sits in the High Thermal Mass Walls category. Because of the thermal mass of the concrete (its ability to absorb and slowly dissipate energy) this category has been allocated a dispensation in R-value requirements compared to the other two categories. Following are the requirements for the various climate zones:

NZBC Clause H1 – Energy Efficiency to NZS 4218:2009

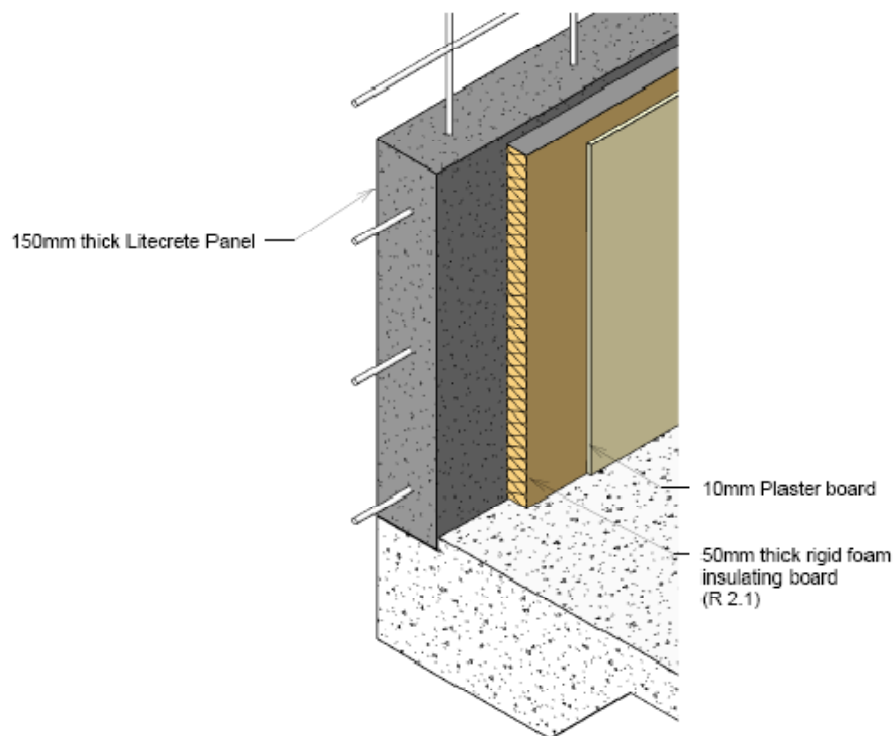
Climate Zones	Minimum Wall R-values	Litecrete Solution
Zone 1 Northland, Auckland and Coromandel Option 1 (a) Option 1 (b)	R0.8 R0.8	"High Thermal Mass" 220 mm thick panels (R0.8) "High Thermal Mass" 150 mm thick panels with 20 mm thickness of insulating plaster on exterior surface "Any Wall Type" 150 mm panels with 40 mm Kingspan insulating board glue-fixed to internal face and plasterboard lining (R1.9)
Zone 2 Rest of North Island except Volcanic Plateau Option 2 (a) Option 2 (b)	R1.0 R0.9	"High Thermal Mass" 280 mm thick panels (R1.0) 250 mm thick panels (R0.9) "Any Wall Type" 150 mm panels with 40 mm Kingspan insulating board glue-fixed to internal face and plasterboard lining (R1.9)
Zone 3 South Island and Volcanic Plateau Option 3 (a) Option 3 (b)	R1.2 R1.0	"High Thermal Mass" 330 mm thick panels (R1.2) 280 mm thick panels (R1.0) "Any Wall Type" 150 mm panels with 40 mm Kingspan insulating board glue-fixed to internal face and plasterboard lining (R2.0)

The Standard provides for three methods of compliance:

1. The Schedule Method shall only be used where:
 - (a) The glazing area is 30% or less of the total wall area;
 - (b) The combined area of glazing on the east, south and west-facing walls is 30% or less of the combined total area of these walls;
 - (c) The skylight area is no more than 1.5 m² or 1.5% of the total roof area (whichever is the greater);
 - (d) The total area of decorative glazing and louvers is 3 m² or less
2. The Calculation Method shall only be used where:
The glazing area is 40% or less of the total wall area
3. The Modelling Method shall only be used where:
The glazing area is more than 40% of the total wall area



Example 1: For Climate Zone 1 – Litecrete wall thickness of 220 mm complies with “High Thermal Mass” insulation requirement; R-value of R0.8



Example 2: Climate Zone 1 – Litecrete wall thickness of 150 mm plus insulation board and plasterboard complies with “Any Wall Type” insulation requirement: minimum R-value of R1.9