RibRaft®

Strong, energy-efficient concrete floors

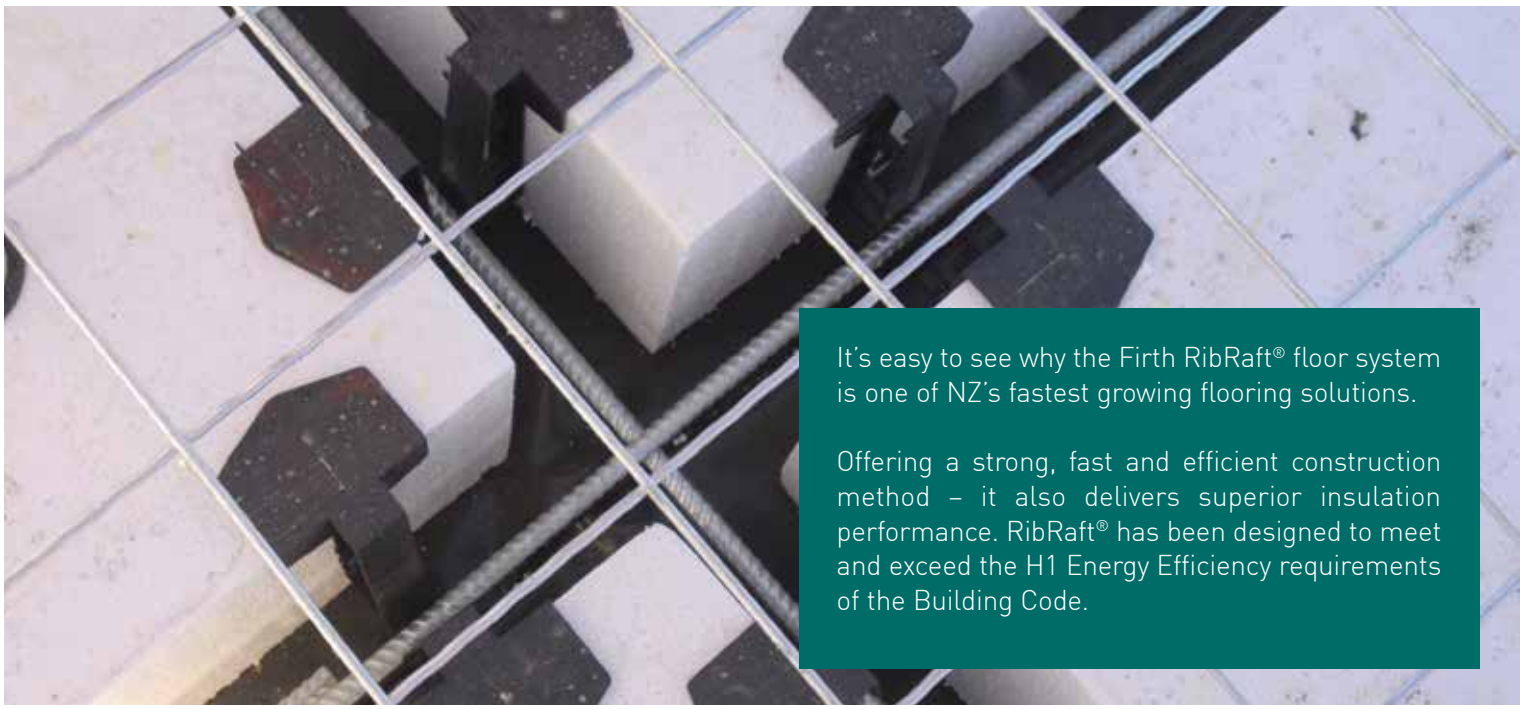
CBI 4711/3121
October 2012

SUPERIOR FLOOR INSULATION DESIGN SOLUTIONS

CERTIFICATE OF CONFORMITY

CodeMark

RibRaft™ Floor System



It's easy to see why the Firth RibRaft® floor system is one of NZ's fastest growing flooring solutions.

Offering a strong, fast and efficient construction method – it also delivers superior insulation performance. RibRaft® has been designed to meet and exceed the H1 Energy Efficiency requirements of the Building Code.

NZ BUILDING CODE REQUIREMENTS

In 2007, changes were made to Clause H1 (Energy Efficiency) of the Building Code.

The **Schedule Method** is the simplest method to achieve compliance under the Code. Using this method, the minimum R-values required for floors are:

R 1.3 m² °C/W
R 1.5 m² °C/W
} Depending on the glazing R- value

While the Schedule Method is simple and quick, the **Calculation Method** offers greater flexibility as it allows low R-values in some elements of the construction to be offset against higher R-values in other building elements such as floors.

THE SUPERIOR SOLUTION

The insulation performance of a concrete floor is dependent upon a number of physical factors including:

- the floor structure
- the concrete mix used in the floor structure
- the ratio of the interior surface area to external perimeter area of the floor
- the thickness of the exterior wall placed on top of the perimeter of the floor
- the positioning and properties of specific insulation elements in the floor design

The Firth RibRaft® floor system - consisting of proprietry RibRaft® polystyrene pods, plastic spacers and RaftMix™ concrete - has been further developed to meet and exceed the insulation requirements of Clause H1 of the Code.

That's the reason why RibRaft® offers such a superior solution. Where RibRaft® floors have higher R-values than required by the Schedule Method, there is now an opportunity to have less insulation in the other building elements by using the Calculation Method.

RIBRAFT® R-VALUE DESIGN SOLUTIONS

The following wall, floor and floor area:perimeter ratio construction details describe a range of floor R-values which can only be achieved using the proprietary RibRaft® system.

IMPORTANT NOTES:

1. **The R-values in the following tables only apply to RibRaft® floors which have been constructed with RaftMix™ and RibRaft® pods and spacers.**
2. **The R-values below are calculated in accordance with NZS 4214:2006 "Methods of Determining the Total Thermal Resistance of Parts of Buildings".**

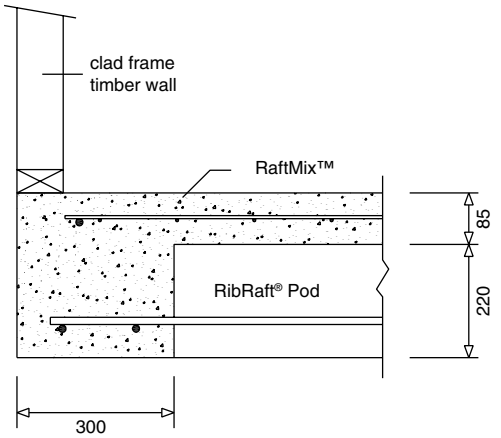
SOLUTION 1

All RibRaft® Floors

All RibRaft® floors are acceptable under the Code which assumes a minimum of R 1.3 m² °C/W.

SOLUTION 2

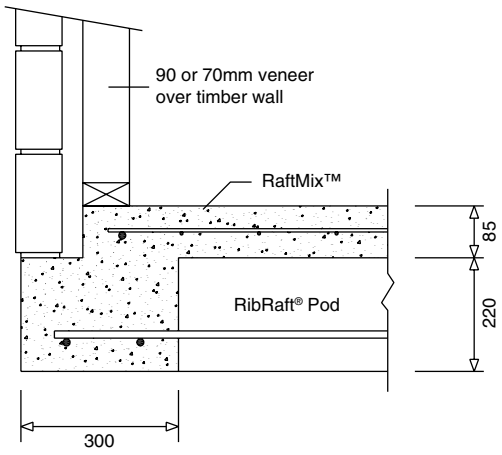
RibRaft® Floors with a 90mm Frame Timber Clad External Wall



	Floor Area To Perimeter Ratio m²/m									
	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
R-value m² °C/W	1.48	1.52	1.64	1.75	1.86	1.97	2.07	2.17	2.38	2.57

SOLUTION 3

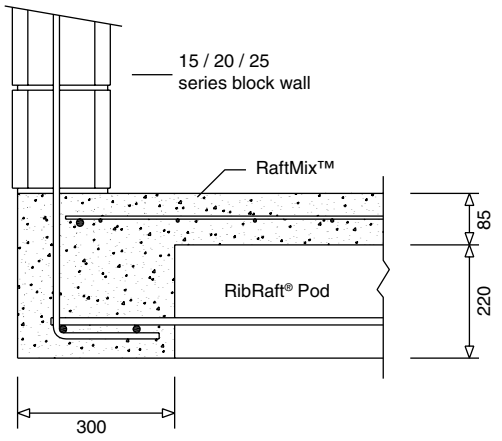
RibRaft® Floors with a 90mm Timber Frame and 70-90mm Veneer Wall with Cavity



	Floor Area To Perimeter Ratio m²/m									
	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
R-value m² ºC/W	1.54	1.67	1.80	1.93	2.05	2.17	2.28	2.40	2.62	2.84

SOLUTION 4

RibRaft® Floors with a Firth Standard or HotBloc® Masonry External Wall



	Block	Floor Area To Perimeter Ratio m²/m									
		1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
R-value m² ºC/W	15 series	1.48	1.60	1.73	1.85	1.96	2.08	2.19	2.30	2.51	2.72
	20 series	1.54	1.67	1.80	1.93	2.05	2.17	2.28	2.40	2.62	2.84
	25 series	1.59	1.73	1.86	1.99	2.12	2.24	2.37	2.49	2.72	2.95

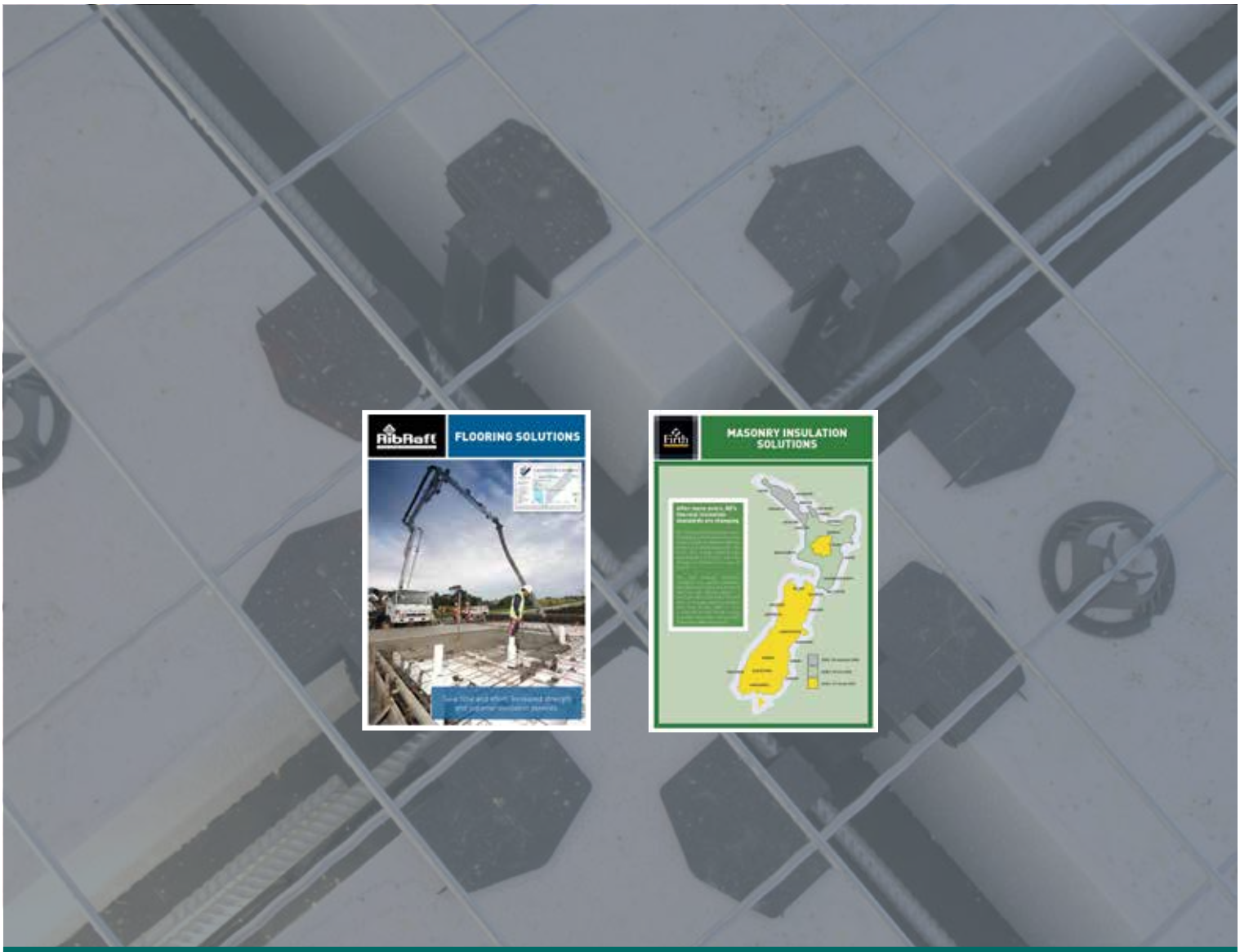
SOLUTION 5

RibRaft® Heated Floors

Where in-floor heating is used, the combination of RaftMix™ and RibRaft® pods ensures that $(R_{IN})/(R_{OUT})$ **is always less than 0.1**. The R-value of the floor can be established from the above tables. The Building Code requires that the floor has a **R-value not less than 1.9 m² ºC/W.**

DESIGN AND CONSTRUCTION

RibRaft® design and construction details can be found in the 'Firth RibRaft® Flooring Solutions' brochure and the 'Firth RibRaft® Floor System Manual'. These publications are available at www.firth.co.nz or by phoning 0800 800 576.



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