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NEW ZEALAND BUILDING CODE CLAUSE H1 – ENERGY EFFICIENCY

compliance report for

NEW OFFICE BUILDING AT

307 DURHAM STREET

CHRISTCHURCH

produced for

WHYTE CONSTRUCTION LTD

OVERVIEW

Thermal insulation assessment outcome:

PASS



METHODOLOGY & ASSUMPTIONS

The area of glazing was less than 50% of the total wall area, the floor area was greater than 300m² and wall construction R-values were less than the scheduled R-Value of 1.2 m²K/W, therefore the H1 assessment was carried out using the **calculation method** for compliance with ¹**NZS 4243:2007** based on the following drawings:

- Titled: 307 Durham Street - Preliminary Review
- Dated: 04/11/2013
- from: WILKIE + BRUCE ARCHITECTS LIMITED

The following assumptions have been made with regard to the proposed constructions for this project:

- The East and West windows shall be double glazed glass aluminium framed construction with an R-value of R0.26 m²K/W.
- The North fire rated windows shall be single glazed glass aluminium framed construction with an R-value of R0.15 m²K/W.
- Floor considered unheated.

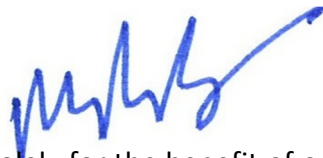
CALCULATION DATA FOLLOWS OVERLEAF

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¹ NZS 4243:2007 Energy Efficiency as referenced by NZBC Clause H1 (3rd ed.)

CALCULATION DATA

H1 3rd Edition Using NZS 4243:2007 Calculation Method						
Proposed Building Heat Loss Calculation AS/NZS 4243:2007						
Construction Type	Construction Description	Assumed R-value (m ² K/W)		Total Area (m ²)	Heat Loss (W/K)	=SGxA _g L
Wall Type 1	Precast Concrete Panel, 45mm Timber Strapping R1.44 EPS Insulation, 13mm	1.53	NZS4214 calculation	455.18	297.50	N/A
Wall Type 2	Hardies Wall Cladding, 140 x 45mm Timber Frame, R2.54 Batts, Gib	2.18	NZS4214 calculation	208.90	95.83	N/A
Wall Type 3	Wall Cladding, 90 x45mm Timber Frame, R3.0 Batts, Gib	2.14	NZS4214 calculation	209.35	97.83	N/A
Glazing	Clear Double Glazing	0.26	WERS double glazing	75.10	288.85	42.06
Fire Rated Glazing	Fire Glass	0.15	WERS single glazing	4.32	28.80	2.42
Floor Type 1 (Slab on grade)	100mm Concrete slab, no insulation	2.60	BRANZ Handbook (Pg 114 A/P: 5.6)	N/A		N/A
Floor Type 2 (Level 1 Overhang & Level 2 Balcony)	100mm Concrete slab, 50mm Kooltherm K10 soffit board	1.99	Kooltherm Product Specifications	N/A		N/A
Roof Type 1 (Main roof)	Metal Roofing, 90 x45 Timber Strapping on 300/15 DHS, R4.0 Fibreglass Batts, Gib Ceiling	2.53	NZS4214 calculation	N/A		N/A
Roof Type 2	Butynol Roof, 17mm Ply,R4.0 Fibreglass, Gib	2.98	NZS4214 calculation	N/A		N/A
Total HL (Walls & Glazing)						808.8

Reference Building Heat Loss Calculation AS/NZS 4243:2007			
Building Component	Assigned R-value (m ² K/W)	Total Area (m ²)	Heat Loss (W/K)
Wall	1.20	873.43	727.86
Wall Correction for 50%	1.20	0.00	0.00
Glazing	0.18	88.06	489.22
Total HL (Walls & Glazing)			1217.1

HL proposed	808.8
HL reference	1217.1

Area (m ²) and Percentage Data			Solar Aperture (V) Check			
Total gross external walls	961.49	m ²	88.06		Σ(SC x Agl)	
Total gross vertical glazing	88.06	m ²	V _{ref} =	=		0.500
Total net external walls	873.43	m ²			ΣA _{wall} + ΣA _{gl}	
Total glazing percentage of total external walls	9%				Σ(SC x Agl)	
			V _{prop} =	=		0.046
			961.49		ΣA _{wall} + ΣA _{gl}	