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This report is submitted by the University of New South Wales

COOL ROOFS COST BENEFIT ANALYSIS

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Authors

CE

Research team

CE

International contributors

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ANNUAL COOLING AND HEATING LOAD UNDER ALICE PR

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Annual climate data

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Table 1 Annual cooling and heating loads

#	Build	Reference scenario				Scenario 1			
		Cooling		Heating		Cooling		Heating	
		Q _c [kWh]	Q _h [kWh]	Q _c [kWh]	Q _h [kWh]	Q _c [kWh]	Q _h [kWh]	Q _c [kWh]	Q _h [kWh]
0	/RZ ULVH R]FH EXLOGLQJ ZLWKRXW URR I LQVXODWLRQ								
0	+LJK ULVH R]FH EXLOGLQJ ZLWKRXW URR I LQVXODWLRQ								
0	1HZ ORZ ULVH R]FH EXLOGLQJ ZLWK URR I LQVXODWLRQ								
0	1HZ KLJK ULVH R]FH EXLOGLQJ ZLWK URR I LQVXODWLRQ								
0	1HZ ORZ ULVH VKRSSLQJ PDOO FHQWUH								
0	1HZ PLG ULVH VKRSSLQJ PDOO FHQWUH								1HZ KLJK

Annual cooling loads (kWh) = $\sum_{i=1}^n \text{ETD}_i \times \text{cooling annual mass}$

Average heating load per unit floor area (kWh/m²) = $\frac{\text{total heating and cooling loads}}{\text{total floor area}}$

ULVH R JFH EXLOG 15QJ
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LV VLJQL4FDQWO\

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6LPXODWLRQV UHVXOWV VKRZ WKDW FRRO
URRIV PD\ KDYH D QHJDWLYH LPSDFW RQ WRWDO
KHDWLQJ DQG FRROLQJ ORDGV LQ DOO EXLOGLQJ
W\SHV H[FOXGLQJ VRPH FRPPHUFLDO
EXLOGLQJV \$OVR WKH DSSOLFDWLRQ RI FRRO
URRIV FDQ VOLJKWO\ GHFUHDVH WKH DQQXDO
FRROLQJ DQG KHDWLQJ ORDGV RI FRPPHUFLDO
EXLOGLQJV

• h b/g w

ORZ OHYHO RI LQVXODWLRQ WKH FRROLQJ ORDG
VDYLQJ E\ LPSOHPHQWDWLRQ RI FRRO URRIV
LQ LQGLYLGXDO EXLOGLQJV VFHQDULR LV
UHPDUNDEOH)RU LQVWDQFH DSSOLFDWLRQ RI
FRRO URRIV LQ LQGLYLGXDO EXLOGLQJ VFHQDULR
LQ DQ H[LVWLQJ ORZ ULVH VKRSSLQJ PDOO
FHQWUH LV SURMHFWHG WR UHGXFH WKH DQQXDO
WRWDO FRROLQJ ORDG E\ N:K P

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UNSW
Sydney

SCHOOL OF BUILT ENVIRONMENT
High Performance Architecture

UNSW SYDNEY, NSW 2052
Australia

Phone
+61 (02) 9385 1000

Email
m.santamouris@unsw.edu.au

Website
<https://www.unsw.edu.au>