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SYDNEY



This report is submitted by the University of New South Wales

COOL ROOFS COST BENEFIT ANALYSIS

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B01 /RZ ULVH R]FH EXL B02 KLJK ULVH R]FH E B03 GLZ ORZ ULVH R]FH EXLOGL

B04 1HZ KLJK ULVH R] B05 FHQWUH B06 FHQWUH

B07 PDOO FHQWUH B08 B09

B10 B11 B12 ([LVWLQJ VFKRRO

B13 ([LVWLQJ ORZ ULV B14 ([LVWLQJ KLJK ULV B15]FH
PDOO FHQWUH

B16 PDOO FHQWUH B17

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1	\$QQXDO FRROLQJ DQG KHDWLQJ ORDGV IRU DOO VFHQDULRV \$OLFH 6SULQJV	3
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4	&RQFOXVLRQV	9

Reference scenario

Scenario 1:
Reference w

5HIHUHQFH EXLOGHQJ DV60PMFEXLEHGLQQ DV LQ WKH U
\$SSHQGL[ZLWK D FRQYHQWVLRQDURUZRMK D FRRO URR
8VH RI WZR VHWV RI FOLPDLVFRGDFWDPDWLF GDWD LQF
LQFOXGLQJ RQH FOLPDWELGPDWLFLGDWDDWHGEXODWHG
E\ :HDWKHU 5HVHDFK)RUKHF FXWUH5QW FRQGLWLRQ IR
IRU WKH FXUUHQW FRQGLWLRQ IRU WZR
ZHDWKHU GDWD
DQQXDO ZHDWKHU GDWD

3URMHFW QDPH &RRO 5RR
3URMHFW QXPEHU 35-
'DWH -DQXDU\
5HSRUW FRQWDFW 3URI OD

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
 LV VLJQL4FDQWO\

LV VLJQL4FDQWO\

^bR

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08

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\ LPSOHPHQDWLRQ 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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ZLWK 4@ @æW 4@)RU ½° RRIV
UHPDUNDEYp 0)RU FFH\$V °`€ @ ...CW@PÀp 0

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High Performance Architecture

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KWWSV ZZZ XQVZ HGX DX



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