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Heat Loss of a Home that has Windows Covered

Report Prepared By

Energy Partners

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1. Introduction

The task is to evaluate in both % terms and $ terms the average heat loss of a home that has windows furnished with various window coverings versus a home with bare glass only and with the House Energy Rating standard of Holland blinds.

We have undertaken this comparison for an average new home (i.e. 5 stars) in each of Sydney and Melbourne and used the weather data for Western Sydney (Richmond) and for Eastern Melbourne (Moorabbin) to be most indicative.

2. Methodology

We have selected a house from the publicly available set of designs used for interpreting the impacts of construction changes as modelled by House Energy Rating software packages. We have chosen one which reflects the existing housing stock in those locations. Each of the houses considered was designed to have around the same software score and window area that represents the middle third of the sample. The house has similar areas of glass facing in each of the four cardinal orientations as was found (on average) in the sample. The house also reflects the fact that in the real world, glass-to-floor area ratios diminish as the house gets larger (29.6% in the smallest third reducing to 26.1% in the largest third). The house plans were selected from the only systematic sample that has been compiled for the purpose of studying annual energy performance in Australia's housing stock. The house is assumed to have BCA-compliant Deemed to Satisfy (DTS) ceiling, wall and floor insulation, concrete slab-on-ground floors, brick veneer external walls and plasterboard internal partitions.

A 5-star version was created for each of Sydney (BCA climate 5) and Melbourne (BCA climate 6) to reflect the energy efficiency of homes built in the last few years. The fenestration used in the modelling was the clear single pane glass commonly used with standard aluminium frames. Also a generic double glazed window with thermally enhanced aluminium frames was substituted to establish the impact of rising performance standards on the value of insulating blinds.

The energy demands of the home variants were calculated assuming the standard House Energy Rating occupancy of a 4-person household. This occupancy is known to overestimate the energy consumption of the average household so our report includes commentary on the likely impact for real families. To convert the energy savings to costs, we assumed two variations of gas central heating were used; a 5 star system with efficiency of 61% including duct losses and a 2 star system with efficiency 43%. Local gas prices were used and it was assumed that gas is used for heating, cooking and hot water to give a competitive marginal cost per MJ of gas metered and purchased. A similar approach was used to cost the electricity used in the cooling systems.

The products used in the modelling are listed in Table 8 with R-values and values for Solar Transmittance and Solar Absorptance. The solar characteristics are key parameters for summer performance but of scant significance in winter performance. These values have been confirmed by Peter Lyons & Associates in their brief report *R-values and Solar Performance of Various Hunter Douglas Products* dated 12 April 2009.

That report also tabulated de-rated values of the added R-value to allow for edge convection effects to be reflective of poorly fitting and/or small blinds with large edge losses relative to the overall blind size.

Thus the 144 simulations required are as follows:

Locations:	2	
House Variants:	2	
Fenestration Types:	2	
Blind Types:	18	(none, Holland, 8 HD fully insulating, 8 HD de-rated)

C Curtain data for windows (AddedR, Trans, Abs). 20 maximum (verbatim from AccuRate software)					
		Window Covering #	Added R-value	Transmittance	Absorbtance
1	16	1	0.00	0.51	0.20
1	16	2	0.03	0.25	0.35
1	16	3	0.06	0.10	0.40
1	16	4	0.11	0.25	0.35
1	16	5	0.33	0.10	0.40
1	16	6	0.03	0.20	0.30
1	16	7	0.00	0.20	0.30

Table 1

Standard insulation, transmission and absorption data in AccuRate for generic window furnishings. Type 6 is the Holland Blind, used in all regulation (standardised) house energy ratings.

See Table 8 for equivalent values for these physical characteristics for the actual window coverings being evaluated.

3. Results

3.1. Normalising the Houses

In each city, the construction was modified to make the base house design just achieve 5 stars as scheduled in Table 1. The design, originating in Melbourne, attained 5 stars with quite conventional constructions. In Sydney, it was necessary to add eaves to avoid going to extraordinary insulation levels and to use the best performing of the three generic aluminium framed single glazings available in AccuRate.

	Added Insulation (R)		**Fenestration**			**Eaves**
Location	**Wall**	**Ceiling**	**U-value**	**SHGC**	**Generic S Glazing**	**Overhang (m)**
Base House	Foil	3.0	6.44	0.75	2	0.25
Sydney 5 Star	2.5	4.0	5.71	0.66	3	0.60
Melbourne 5 Star	1.5	4.0	6.44	0.75	2	0.25

Table 2 Construction details of the three houses that were modelled

3.2. Energy Prices

The unit prices for electricity and gas for Sydney and Melbourne used in this exercise are shown below in Table 3. The data for Sydney was gathered from the Energy Australia market agreement for residential electricity prices. For Melbourne, the data was collected from residential energy prices as advertised by AGL.

	Electricity (c/kWh)	Gas (c/MJ)
Sydney	20.845	1.6955
Melbourne	17.897	1.1924

Table 3 Unit Energy Prices for Sydney and Melbourne

3.3. Effect on Actual Occupancy

As mentioned in Section 2, the four person occupancy model used in AccuRate is known to overestimate the actual energy consumption for a typical home. The energy consumption is overestimated because of some of the assumptions made about the level of occupancy and the heating and cooling zones within the house.

For example, AccuRate assumes that the house is occupied 24 hours a day, 365 days per year. It has been acknowledged that this occupancy model is likely to be unrepresentative of a significant proportion of Australian households.[1]

Also, there is likely to be discrepancies between the zoning assumptions made by AccuRate and the actual zoning within the typical home. AccuRate assumes that living spaces are conditioned between 7am to midnight and bedrooms are conditioned between 4pm and 9am, although to a lesser comfort standard. This cycle applies for every day of the simulation, which results in the house being at least partly conditioned at virtually all times.

This space conditioning schedule is likely to exaggerate the hours of use for the heating and cooling systems in the house and not account for zoning measures that are put in place by the residents. An example of the zoning measures is that residents may program their heating unit to operate for fewer hours than specified by AccuRate.

For these reasons the actual energy consumption is overestimated by AccuRate. This means that the cost savings calculated based on the AccuRate results are likely to be higher than the actual savings that would be earned by installing these window coverings. However, it is likely that the percentage savings that were calculated from the AccuRate output will be representative.

[1] Reference: Department of Environment, Heritage, Water and the Arts (DEWHA), *"Energy Use in the Australian Residential Sector 1986-2020; 2008"*

3.4. Summer and Winter Performance

In terms of improving the winter performance of windows, the most important characteristic of the window covering is the added R-value. The added R-value directly affects the amount of heat lost through windows so that a higher added R-value will reduce the amount of energy lost.

The summer performance of the windows is largely governed by the amount of solar energy that is reflected by the window coverings compared to the amount that is absorbed or transmitted. Reflectivity may be calculated based on the principle that, for any given wavelength, the sum of transmittance, absorptance and reflectivity must be equal to one.

AccuRate is programmed to model the houses with sensible, alert occupants and hence with the window coverings drawn on hot summer days when the sun is shining on the windows. The result of this feature in AccuRate is that window coverings with high reflectivity will have superior summer performance compared to window coverings that will absorb or transmit a high percentage of the incoming solar radiation.

For this reason the window coverings that have superior winter performance are not necessarily the window coverings that were calculated as having the best overall (heating and cooling) performance. To represent this, the heating and cooling savings have been provided in Table 13 as a percent of the heating and cooling loads of the base house as well as the estimated cost savings.

3.5. Results Tables

Each of the window coverings significantly improve the overall energy performance compared to the base house fitted with single glazed windows and Holland blinds. It is seen that for each window covering there is a significant decrease in total energy consumption. Also, the percentage saving of heating energy is a larger percentage than the overall energy saving. This indicates that the window coverings provide a greater improvement to the winter performance of the house compared to the summer performance.

Section 3.5.1 and Section 3.5.2 below show results tables for Sydney and Melbourne respectively. Both sections contain the results for the 5 Star house fitted with each of the 8 window coverings and the two glazing variations in each climate. The analysis of the de-rated window coverings is also shown, however this calculation does not include values for Holland blinds and bare windows. Results for the analysis of the heating savings of the base house relative to Holland blinds are provided in Appendix 4.

3.5.1. Sydney Results

5 Star Sydney House Fully Effective Blinds		**Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds**	
Window Covering	**Heating Savings Compared to 5 Star House (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	55.8%	$160.48	$113.12
Architella - 20mm Panache	50.9%	$146.50	$103.27
Duette - 10mm Nightfall	48.4%	$139.17	$98.10
Duette - 10mm Classic	46.3%	$133.18	$93.88
Silhouette Shadings	16.4%	$47.28	$33.33
Luminette Privacy Sheers	26.4%	$75.91	$53.51
Designer Roller Shades - Blockout Fabric (Morocco)	30.3%	$87.23	$61.49
Designer Roller Shades - Translucent Fabric (Milano)	23.8%	$68.59	$48.35
Bare Windows[2]	-8.6%	-$24.64	-$17.37
Holland Blinds	0.0%	$0.00	$0.00
Double Glazed			
Architella - 20mm Panache Opaque	63.0%	$181.12	$127.68
Architella - 20mm Panache	59.7%	$171.80	$121.10
Duette - 10mm Nightfall	58.1%	$167.14	$117.82
Duette - 10mm Classic	56.7%	$163.14	$115.00
Silhouette Shadings	39.6%	$113.87	$80.27
Luminette Privacy Sheers	44.9%	$129.18	$91.06
Designer Roller Shades - Blockout Fabric (Morocco)	47.0%	$135.18	$95.29
Designer Roller Shades - Translucent Fabric (Milano)	43.5%	$125.19	$88.25
Bare Windows	25.9%	$74.58	$52.57
Holland Blinds	30.6%	$87.90	$61.96

Table 4 Relative Performance in a 5 Star Sydney House (all compared with single glazed Holland Blinds)

[2] There is a negative value calculated for the energy and cost savings for bare glass. This is because the bare glass performs worse than the base Holland blind coverings and so is actually more energy inefficient and subsequently more expensive in operation than using Holland blinds.

5 Star Sydney House De-Rated Blinds		Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	43.3%	$124.52	$87.78
Architella - 20mm Panache	36.8%	$105.88	$74.63
Duette - 10mm Nightfall	34.0%	$97.89	$69.00
Duette - 10mm Classic	31.7%	$91.23	$64.31
Silhouette Shadings	5.1%	$14.65	$10.33
Luminette Privacy Sheers	12.7%	$36.62	$25.82
Designer Roller Shades - Blockout Fabric (Morocco)	15.7%	$45.28	$31.92
Designer Roller Shades - Translucent Fabric (Milano)	10.6%	$30.63	$21.59
Double Glazed			
Architella - 20mm Panache Opaque	54.6%	$157.15	$110.78
Architella - 20mm Panache	50.9%	$146.50	$103.27
Duette - 10mm Nightfall	49.1%	$141.17	$99.51
Duette - 10mm Classic	47.9%	$137.84	$97.17
Silhouette Shadings	33.3%	$95.89	$67.59
Luminette Privacy Sheers	37.5%	$107.87	$76.04
Designer Roller Shades - Blockout Fabric (Morocco)	36.3%	$104.54	$73.70
Designer Roller Shades - Translucent Fabric (Milano)	39.1%	$112.54	$79.33

Table 5 Relative Performance in a 5 Star Sydney House with de-rated window coverings (all compared with single glazed Holland Blinds)

3.5.2. Melbourne Results

5 Star Melbourne House Fully Effective Blinds		**Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds**	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	39.8%	$241.56	$170.28
Architella - 20mm Panache	36.4%	$221.00	$155.78
Duette - 10mm Nightfall	34.7%	$210.95	$148.70
Duette - 10mm Classic	33.3%	$202.34	$142.63
Silhouette Shadings	12.2%	$74.14	$52.27
Luminette Privacy Sheers	19.3%	$117.19	$82.61
Designer Roller Shades - Blockout Fabric (Morocco)	22.0%	$133.46	$94.08
Designer Roller Shades - Translucent Fabric (Milano)	17.6%	$106.67	$75.19
Bare Windows	-6.1%	-$37.31	-$26.30
Holland Blinds	0.0%	$0.00	$0.00
Double Glazed			
Architella - 20mm Panache Opaque	48.3%	$293.70	$207.04
Architella - 20mm Panache	46.1%	$279.83	$197.26
Duette - 10mm Nightfall	45.0%	$273.14	$192.54
Duette - 10mm Classic	44.0%	$267.40	$188.49
Silhouette Shadings	32.9%	$199.95	$140.95
Luminette Privacy Sheers	36.2%	$220.04	$155.11
Designer Roller Shades - Blockout Fabric (Morocco)	37.6%	$228.65	$161.18
Designer Roller Shades - Translucent Fabric (Milano)	35.5%	$215.73	$152.07
Bare Windows	25.0%	$151.64	$106.89
Holland Blinds	27.4%	$166.46	$117.34

Table 6 Relative Performance in a 5 Star Melbourne House (all compared with single glazed Holland Blinds)

5 Star Melbourne House De-Rated Blinds		Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	30.9%	$187.99	$132.52
Architella - 20mm Panache	26.6%	$161.68	$113.97
Duette - 10mm Nightfall	24.4%	$148.29	$104.53
Duette - 10mm Classic	22.9%	$139.20	$98.12
Silhouette Shadings	3.9%	$23.92	$16.86
Luminette Privacy Sheers	9.4%	$56.92	$40.13
Designer Roller Shades - Blockout Fabric (Morocco)	11.5%	$69.84	$49.23
Designer Roller Shades - Translucent Fabric (Milano)	8.0%	$48.31	$34.06
Double Glazed			
Architella - 20mm Panache Opaque	42.7%	$259.26	$182.76
Architella - 20mm Panache	40.2%	$243.96	$171.97
Duette - 10mm Nightfall	39.0%	$236.78	$166.91
Duette - 10mm Classic	38.2%	$232.00	$163.54
Silhouette Shadings	29.1%	$176.51	$124.42
Luminette Privacy Sheers	31.5%	$191.34	$134.88
Designer Roller Shades - Blockout Fabric (Morocco)	30.9%	$187.99	$132.52
Designer Roller Shades - Translucent Fabric (Milano)	32.5%	$197.56	$139.26

Table 7 Relative Performance in a 5 Star Melbourne house fitted with de-rated window coverings (all compared with single glazed Holland Blinds)

4. Conclusions and Recommendations

4.1. Conclusions

In Melbourne, the best performing of these Hunter Douglas products is the Architella – 20mm Panache Opaque. It was calculated that in a 5 Star house with continuous occupation and space conditioning throughout, fitting this window covering would save up to $170 per year with a 5 star gas heater or $241 per year with a 2 star heater.

Similarly, in Sydney, the Architella – 20mm Panache Opaque was the best performing product. A 5 Star house with this window covering is expected to have a 55% reduction in the total heating energy consumed. This equates to a $113 saving per year for a 5 star gas heater or $160 annual saving when using a 2 star heater.

Recent research has indicated that fewer than 50% of Australian dwellings are more-or-less continuously occupied and heated throughout. Hence the savings in the average home will be less in dollar terms but the percentage savings found in this project will hold approximately true for a wide range of occupancy patterns.

4.2. Recommended Further Work

We recommend the analysis of the impact of the same blinds on cooling energy consumption and expenditure and on the peak cooling load on the houses (indicative of savings in air conditioner size and the social cost of impact on the electricity grid on hot summer days). An example of the expected results is included in Table 13. These added analyses would cost $2,000 and $3,500 respectively plus GST.

The cited social cost of peak loads is likely to be converted to private costs (and savings) with the roll out of the so-called smart meters now committed to by the Victorian Government and likely to proceed in other jurisdictions. See the Report for the Ministerial Council on Energy Smart Meter Working Group,
Cost Benefit Analysis of Smart Metering and Direct Load Control, Work Stream 4: Consumer Impacts, Phase 2 Consultation Report, February 2008.

Appendix 1 : Details of Window Furnishings

Product (description of interior attachment)	Added R-value ($h.ft^2.^oF/Btu$)	Added R-value ($m^2.K/W$) (HD conversion)	Added R-value ($m^2.K/W$) (PLA check)	Added R-value ($m^2.K/W$) (50% derated; ventilated gap)	Attachment Solar Transmittance	Attachment Solar Absorptance
Architella - 20mm Panache Opaque	3.68	0.648	0.648	0.324	0.000	0.380
Architella - 20mm Panache	2.75	0.484	0.484	0.242	0.180	0.140
Duette - 10mm Nightfall	2.39	0.421	0.421	0.210	0.000	0.450
Duette - 10mm Classic	2.13	0.375	0.375	0.188	0.300	0.130
Silhouette Shadings	0.52	0.092	0.092	0.046	0.360	0.080
Luminette Privacy Sheers	0.86	0.151	0.151	0.076	0.220	0.120
Designer Roller Shades - Blockout Fabric (Morocco)	1.02	0.180	0.180	0.090	0.000	0.400
Designer Roller Shades - Translucent Fabric (Milano)	0.75	0.132	0.132	0.066	0.200	0.400

Table 8 List of Products Evaluated and their Solar and Thermal Properties

Note: All values are provided by Hunter Douglas USA and represent the amount added by the product. This means the above R values do not include the amount added by the glass. All measurements were made with the product in the fully lowered position with vanes fully closed if applicable. The thermal properties are determined by a certified third party laboratory utilising accepted ASTM, NFRC and WES standards and procedures.

Appendix 2 : House Details

Medium	
View from street	
Plan	

Figure 1 Medium house (Isaacs, 2007). Net conditioned floor area = 172.5 m^2

Appendix 3 Scratch file naming convention

1	2	3	4	5

1 = House types
2 = Glazing types
3,4 = Window covering types
5 = Original/De-rated

Example

M	S	H	B	(Blank)

5 stars Melbourne, Single glazed, Holland blinds, Original added R-value

S	D	A	O	2

5 stars Sydney, Double glazed, Architella - 20mm Panache Opaque, 50 % Derated

Appendix 4 Results Tables

In this section the remainder of the calculated values are presented. The tables presented are similar to those shown above in section 3 of the report. The data sets include savings for the combination of each of the two locations, two house variations, single and double-glazing and each of the 8 window coverings listed in Table 8. The savings are calculated relative to both Holland blinds and bare glass.

Base House in Sydney Fully Effective Blinds		**Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds**	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	43.2%	$238.39	$168.04
Architella - 20mm Panache	39.9%	$219.74	$154.90
Duette - 10mm Nightfall	38.2%	$210.42	$148.33
Duette - 10mm Classic	36.7%	$202.43	$142.70
Silhouette Shadings	14.5%	$79.91	$56.33
Luminette Privacy Sheers	22.2%	$122.52	$86.37
Designer Roller Shades - Blockout Fabric (Morocco)	25.1%	$138.51	$97.63
Designer Roller Shades - Translucent Fabric (Milano)	20.3%	$111.87	$78.86
Bare Windows	-9.8%	-$53.94	-$38.02
Holland Blinds	0.0%	$0.00	$0.00
Double Glazed			
Architella - 20mm Panache Opaque	49.3%	$271.68	$191.51
Architella - 20mm Panache	47.0%	$259.03	$182.60
Duette - 10mm Nightfall	46.0%	$253.70	$178.84
Duette - 10mm Classic	45.0%	$248.38	$175.09
Silhouette Shadings	34.3%	$189.11	$133.31
Luminette Privacy Sheers	37.7%	$207.76	$146.45
Designer Roller Shades - Blockout Fabric (Morocco)	39.0%	$215.08	$151.62
Designer Roller Shades - Translucent Fabric (Milano)	37.0%	$203.76	$143.64
Bare Windows	26.6%	$146.50	$103.27
Holland Blinds	29.0%	$159.81	$112.66

Table 9 Base House in Sydney, savings are compared to Holland Blinds

Base House in Sydney De-Rated Blinds		Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	34.4%	$189.78	$133.78
Architella - 20mm Panache	30.0%	$165.14	$116.41
Duette - 10mm Nightfall	27.8%	$153.15	$107.96
Duette - 10mm Classic	26.1%	$143.83	$101.39
Silhouette Shadings	4.7%	$25.97	$18.31
Luminette Privacy Sheers	11.2%	$61.93	$43.65
Designer Roller Shades - Blockout Fabric (Morocco)	13.8%	$75.91	$53.51
Designer Roller Shades - Translucent Fabric (Milano)	9.5%	$52.61	$37.08
Double Glazed			
Architella - 20mm Panache Opaque	43.7%	$241.05	$169.92
Architella - 20mm Panache	41.3%	$227.73	$160.53
Duette - 10mm Nightfall	40.2%	$221.74	$156.31
Duette - 10mm Classic	39.5%	$217.75	$153.49
Silhouette Shadings	30.7%	$169.14	$119.23
Luminette Privacy Sheers	33.0%	$181.79	$128.15
Designer Roller Shades - Blockout Fabric (Morocco)	32.5%	$179.12	$126.27
Designer Roller Shades - Translucent Fabric (Milano)	34.1%	$187.78	$132.37

Table 10 Base in Sydney fitted with de-rated window coverings. Savings are relative to Holland Blinds

Base House in Melbourne Fully Effective Blinds		Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	30.1%	$299.92	$211.42
Architella - 20mm Panache	27.7%	$276.01	$194.56
Duette - 10mm Nightfall	26.5%	$264.05	$186.13
Duette - 10mm Classic	25.6%	$254.48	$179.39
Silhouette Shadings	10.0%	$99.97	$70.47
Luminette Privacy Sheers	15.4%	$153.55	$108.24
Designer Roller Shades - Blockout Fabric (Morocco)	17.3%	$172.68	$121.73
Designer Roller Shades - Translucent Fabric (Milano)	14.1%	$140.63	$99.14
Bare Windows	-6.2%	-$61.71	-$43.50
Holland Blinds	0.0%	$0.00	$0.00
Double Glazed			
Architella - 20mm Panache Opaque	39.7%	$395.59	$278.86
Architella - 20mm Panache	38.2%	$379.81	$267.73
Duette - 10mm Nightfall	37.5%	$373.11	$263.01
Duette - 10mm Classic	36.9%	$366.89	$258.63
Silhouette Shadings	29.5%	$293.70	$207.04
Luminette Privacy Sheers	31.7%	$315.71	$222.55
Designer Roller Shades - Blockout Fabric (Morocco)	32.6%	$324.80	$228.96
Designer Roller Shades - Translucent Fabric (Milano)	31.2%	$310.93	$219.18
Bare Windows	24.6%	$244.91	$172.64
Holland Blinds	26.0%	$258.79	$182.42

Table 11 Base house in Melbourne, savings are relative to Holland Blinds

Base House in Melbourne De-Rated Blinds		Savings in Heating Energy Expenditure from Window Coverings Relative to Holland Blinds	
Window Covering	**Heating Savings (%)**	**2 Star Heater**	**5 Star Heater**
Single Glazed			
Architella - 20mm Panache Opaque	23.9%	$237.74	$167.59
Architella - 20mm Panache	20.8%	$206.65	$145.67
Duette - 10mm Nightfall	19.2%	$190.86	$134.54
Duette - 10mm Classic	18.1%	$179.86	$126.79
Silhouette Shadings	3.3%	$32.53	$22.93
Luminette Privacy Sheers	7.8%	$77.49	$54.63
Designer Roller Shades - Blockout Fabric (Morocco)	9.5%	$94.23	$66.43
Designer Roller Shades - Translucent Fabric (Milano)	6.6%	$66.01	$46.53
Double Glazed			
Architella - 20mm Panache Opaque	35.9%	$357.32	$251.88
Architella - 20mm Panache	34.2%	$340.58	$240.08
Duette - 10mm Nightfall	33.5%	$333.41	$235.02
Duette - 10mm Classic	33.0%	$328.15	$231.32
Silhouette Shadings	27.1%	$269.31	$189.84
Luminette Privacy Sheers	28.5%	$284.14	$200.29
Designer Roller Shades - Blockout Fabric (Morocco)	28.3%	$281.75	$198.61
Designer Roller Shades - Translucent Fabric (Milano)	29.2%	$290.83	$205.01

Table 12 Base house in Melbourne fitted with de-rated window coverings

Sydney Base House			Window Coverings Savings in Energy Expenditure Relative to Bare Windows	
Window Covering	**Heating Savings compared to Base House (%)**	**Cooling Savings compared to Base House (%)**	**2 Star Heater 2 Star Cooler**	**5 Star Heater 5 Star Cooler**
Single Glazed				
Architella - 20mm Panache Opaque	48.3%	18.9%	$393.08	$285.97
Architella - 20mm Panache	45.2%	20.1%	$380.95	$277.99
Duette - 10mm Nightfall	43.7%	17.6%	$358.16	$260.75
Duette - 10mm Classic	42.4%	17.0%	$347.13	$252.70
Silhouette Shadings	22.1%	16.4%	$221.57	$163.92
Luminette Privacy Sheers	29.2%	18.9%	$277.65	$204.64
Designer Roller Shades - Blockout Fabric (Morocco)	31.8%	18.7%	$292.32	$214.87
Designer Roller Shades - Translucent Fabric (Milano)	27.4%	14.0%	$240.50	$176.12
Bare Windows	0.0%	0.0%	$0.00	$0.00
Holland Blinds	8.9%	16.3%	$140.79	$106.91
Double Glazed				
Architella - 20mm Panache Opaque	53.8%	34.5%	$509.75	$375.57
Architella - 20mm Panache	51.7%	35.5%	$502.74	$371.13
Duette - 10mm Nightfall	50.8%	33.0%	$483.96	$356.70
Duette - 10mm Classic	49.9%	33.2%	$479.50	$353.63
Silhouette Shadings	40.2%	31.7%	$412.42	$305.65
Luminette Privacy Sheers	43.2%	33.9%	$442.79	$328.10
Designer Roller Shades - Blockout Fabric (Morocco)	44.4%	33.4%	$447.50	$331.19
Designer Roller Shades - Translucent Fabric (Milano)	42.6%	29.8%	$416.64	$307.72
Bare Windows	33.1%	18.9%	$301.18	$221.19
Holland Blinds	35.3%	30.3%	$375.73	$279.15

Table 13 Heating and Cooling Savings for Base House in Sydney relative to bare single glass