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for smarter environments

**SAVE 50% OFF  
THE COST OF A ROOF**



**Thinking  
panels  
Think  
AGAIN!**

**CSR**

# Do you really need to pay extra to insulate with a panel system?

Conventional roof systems such as spacer or SafeBridge purlin systems, as well as insulated sandwich panel systems, will all meet the energy efficiency provisions in the Building Code of Australia (BCA) Section J requirements.

Roof systems consisting of pre-assembled metal roof panels with an insulated core have been gaining popularity recently.

Some of the potential advantages of installing an insulated panel roof system over a conventional spacer or SafeBridge purlin system are:

- o Flat clean finish – especially as an internal finish
- o Quick to install (under suitable conditions)
- o Ideal for use in aquatic centres in cold regions

However, a panel system will generally have an installed cost that is significantly more than a conventional spacer or SafeBridge purlin system roof.

Research shows that typical total installed costs are:

Conventional roof with SafeBridge purlin system  
**\$55 to \$65 per m<sup>2</sup>**

Conventional roof with Ashgrid spacer system  
**\$60 to \$70 per m<sup>2</sup>**

Insulated panel system  
**\$115 to \$125 per m<sup>2</sup>**

**A conventional spacer or purlin system roof will meet BCA Section J compliance at HALF THE COST OF A PANEL SYSTEM!**

# Meet BCA Section J compliance at a lower cost!

Aside from the key benefit of ensuring BCA Section J compliance at a lower cost, a conventional spacer or SafeBridge purlin system also has other advantages over an insulated panel, such as:

- Flexible widths and lengths to suit projects – not limited to set panel lengths (approximately 14m)
- Flexible roof type – can be pierced or concealed fixed
- Equipment costs savings – no need for crane hire during the entire roof installation
- Less joins or penetrations in roof
- Superior acoustic insulation performance

## KEY SYSTEM FEATURES COMPARISON

ROOF SYSTEMS	MAX TOTAL R-VALUE	BRACKET HEIGHT/THICKNESS (mm)	ROOF TYPE	AVG. OVERALL INSTALLED COST (incl. materials)
<b>Ashgrid spacer system (with pre-loaded screws)</b>	Up to R4.8 <sup>1</sup> (175mm blanket)	60, 80, 110, 120, 150	Pierced and concealed fixed	\$60 to \$70
<b>SafeBridge purlin system</b>	Up to R4.3 <sup>1</sup> (145mm blanket)	150, 200 (purlin height)	Pierced and concealed fixed	\$55 to \$65
<b>PIR Panel systems</b>	Up to R5.35 <sup>2</sup> (100mm core thickness)	N/A	Pierced fixed	\$115 to \$125

In addition, conventional spacer or SafeBridge purlin roof systems can also provide other benefits such as:

- Meet occupational safety requirements – does not compromise protection for the installer (safety mesh is best practice regardless of roof type)
- Greater choice of suppliers, colours and finishes
- Internal aesthetics can be improved with use of Thermoplast white 993 membrane laid separately to the glasswool insulation, but still at a much lower installed cost
- SafeBridge provides the lowest roof line profile of any system – providing potential savings on services, gutter/fascia and installation time
- SafeBridge can also be used on any roof pitch



Safebridge purlin system



Ashgrid spacer system

Disclaimer: Please note that all the comparisons detailed here have been prepared by CSR Bradford only and are based on CSR Bradford's knowledge of roofing insulation and roof system products (as at 01/05/2015), as well as product information available from product brochures/website. CSR Bradford recognises that Building Codes and Standards are under constant review. <sup>1</sup> Maximum Total R-Value performance only based upon a non-ventilated flat metal roof with no ceiling, using safety mesh and glasswool insulation with reflective foil facing. <sup>2</sup> Maximum Material R-Value based on Polyisocyanurate (PIR) panels, does not include Expanded Polystyrene with Fire Retardant (EPS-FR) panels.

# Research comparing roof systems

To understand the total cost of constructing a roof with each of the key commercial roof systems in the market, including cost of components, equipment, labour-time, and training, a roof system cost comparison survey was conducted by CSR Bradford in June 2014.

## Key systems compared

- Ashgrid spacer system
- SafeBridge purlin system
- PIR Panel systems

## Respondents

The respondents were all roof contractors who specialise in commercial buildings. 16 roofers participated from across Australia including VIC, QLD, SA and NT. All respondents had installed all three types of roof systems and all have many years of experience working on commercial building projects.

## Survey

Respondents were asked to provide an indicative cost per square meter for each of the key roof systems, based on typical roof installation projects with the following features.

- A commercial warehouse project in climate zone 6
- 7 to 9 metres in height with 5° pitch
- Light coloured roof sheet
- Pierced or concealed fixed
- Non-ventilated flat metal roof with no ceiling
- Purlin spacing 1210mm with safety mesh
- Glasswool insulation with reflective foil facing (where applicable) to achieve (summer) total R-Value R3.2, or PIR panels (thickness) to achieve (summer) R-Value 3.2

## Cost inclusions/exclusions

Respondents were asked to base their costs on past projects of similar specifications for each of the roof systems compared. Project specific details such as flashings and gutters were assumed to be excluded unless specified by respondents (in which case they allowed for these details for all 3 system types).

After the survey, selected respondents were also interviewed and asked to provide more detailed feedback on what inclusions/exclusions were allowed, i.e. machine hire, cranes and delivery.

## RESULTS

	ASHGRID (\$/m <sup>2</sup> )	SAFEBRIDGE (\$/m <sup>2</sup> )	PIR PANELS (\$/m <sup>2</sup> )
Average	\$60 to \$70	\$55 to \$65	\$115 to \$125
Median	\$70	\$60	\$115

Disclaimer: Average and median figures have been rounded off to the dollar and certain cost points have been amended based on interview responses on what inclusions/exclusions were allowed, i.e. machine hire, cranes and delivery. Please note that building material and installation costs are subject to change.

Cost points vary between respondents, but some common trends are:

Overall, SafeBridge purlin system costs slightly less than Ashgrid spacer system, up to 7% less than Ashgrid. This is mainly due to the cost savings from not having to purchase the spacers.

All respondents have revealed that panel systems have the highest costs compared to other roof systems for the same project – by a considerable amount. Hence, even though panel systems costs are indicative only<sup>1</sup>, it is possible to conclude that spacer and SafeBridge purlin systems cost significantly less than panel systems. From the results of this survey, panels cost on average around twice as much as spacer or SafeBridge purlin systems.

Results from this survey as well as anecdotal responses indicate that while the cost of installation varied by state (with NT the most expensive due to higher cost of materials and labour), the relative difference in price between the different roof systems was consistent within each state.

<sup>1</sup>The range of panel systems available on the market can vary significantly in R-Value, thickness and application, however, it should be noted that although some panels have a lower R-Value per thickness, using a thicker panel of the same or a different core type may in fact be more economical, as improved spans can lead to less supporting materials being required. Different core materials may also have inherently different properties such as fire properties, which can lead to significant variations in cost. For example, PIR is a thermoset, medium density, high strength foam, which will char when exposed to flame, and EPS is a thermoplastic, low density, high strength foam which is self-extinguishing when exposed to flames.

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