



Quicker. Leaner. Smarter. Greener.

PRODUCT INFORMATION GUIDE

The InsulLiving® message

InsulLiving® has the answers.

Quicker

- Faster build times – quicker than traditional building methods.
- Home owner can move in sooner.
- Better cash flow – builder receives payment sooner.
- Increase house builds per builder per year.
- Quick supply from local manufacturing facilities in all states.
- Turn unskilled labour into capable installers within weeks.

Leaner

- Lower construction costs - reduce walling & roofing costs.
- Less components and materials than traditional homes.
- Reduced reliance on trades.
- Shorter supply chain.
- Fewer deliveries and decreased logistical issues.
- Ongoing energy savings over the life of the house.

Smarter

- Smart InsulWall® walling system – replacing frames, brick, plasterboard and insulation.
- Smart SolarSpan® roofing system – replacing trusses, roof sheets, ceiling and insulation.
- Suitable for one and two storey designed homes.
- Panels interlock easily to form a complete thermally efficient shell.
- Fully engineered and CodeMark™ accredited for compliance with the Building Code of Australia.
- Simplified and improved building process.
- Product development from credible Australian companies Bondor, BlueScope Steel and Dulux Acratex.

Greener

- Significantly exceeds required Energy Ratings of 6 stars.
- Reduced environmental impact in manufacture, delivery, build and residency.
- Achieve Zero & Positive Energy housing communities.
- Fully reusable, recyclable and non-toxic building materials.



The InsulLiving® message

“Australian builders and developers deserve a building system that is simple, quick and affordable.”



WINNER 2012
HIA INNOVATION AWARD
Bondor-InsulLiving

Complying with the increasing thermal and structural requirements of the Building Code of Australia has meant builders are continually adding more and more components to the build, often resulting in more trades, deliveries and greater complexity in both design and building tasks.

Bondor® has been providing thermal building solutions for over 50 years and has developed a smarter residential building system that meets structural and thermal standards whilst simplifying the construction process.

This results in a quicker build time with benefits for the builder, home owner and the environment. The InsulLiving® building system comprises InsulWall® walling and SolarSpan® roofing. This smarter innovative residential building system offers a simpler, quicker and more affordable building alternative.

1	The InsulLiving® message
3	InsulLiving's perfect finish
5	The Designer
6	The Developer
7	The Builder
8	The Home Owner
9	The InsulLiving® System
11	InsulWall® specification
12	SolarSpan® specification
13	About Bondor®
14	The InsulLiving® edge





InsulWall's specially coated BlueScope Steel shell provides a flat surface, ready for rendering externally and painting or tiling internally, showcasing InsulLiving's potential for a perfectly flush finish.

SolarSpan® insulated roofing offers designers and builders long spanning wide open spaces, pre-finished with an attractive pre-painted ceiling along with a modern palette of COLORBOND® roof colours.

InsulWall® and SolarSpan® combined, form a complete thermal shell to protect the home from cold or hot weather and offer a new level of sustainable and energy efficient housing.



InsulLiving's perfect finish

“Achieve a quality modern finish with speed and affordability.”





The Designer

“Designed for today, while considering tomorrow’s needs.”

Australian homes have essentially been designed and built the same way for many years. The need to protect our environment and to conserve energy has become the catalyst for a revolutionary change. InsulLiving® is the next step towards zero energy housing, offering a designer friendly system that is Quicker, Leaner, Smarter and Greener.

The InsulLiving® system offers residential designers and architects the chance to be more energy and environmentally conscious without the extra effort. Its flat steel panel shell enables ease of rendering externally and painting internally, resulting in a house that looks like any other well finished modern house in the street.

The secret of Bondor’s energy efficient panel design and associated cost savings throughout construction and beyond, might be hidden from view but are enjoyed by the home owner and resident for the life of the home.

Designer benefits include:

- The opportunity to create significant cost savings in construction by using the modular benefits of insulated panel.
- The ability to design homes that are much quicker to build yet more suitable to Australian climatic conditions and lifestyles.
- Promoting a more energy conscious and environmentally friendly community.
- Modern roof lines with long spans and open spaces that allow for dramatic design statements.
- A fully insulated building shell using a single product.
- A proven product that meets the Australian building standards and exceeds the required star ratings.





The Developer

“A new dawn, a new beginning, greater opportunities.”

Developers are continually under pressure from the introduction of more stringent Government regulations and the ever changing market trends, to develop sustainable energy efficient communities that fulfill the needs of today's conscientious home owners. The InsulLiving® system was developed with a vision for our sustainable future and offers significant scope for developers to build a living community that will change with the needs of its members.

Forward thinking developers are looking for a means to satisfy growing demand for sustainable living and to get ahead of the curve of developing market demand. InsulLiving® provides a break through vehicle for developers, it is simply Quicker, Leaner, Smarter and Greener.

Developer benefits include:

- InsulLiving's capability to build large scale sustainable communities.
- Massive reductions in building materials resulting in fewer transport journeys and a reduced carbon footprint during construction.
- Improved insulation and energy efficiency resulting in a lower environmental impact over the life of the dwelling.
- A simpler construction process leading to more responsible use of scarce skilled resources.
- Modern flexible design options for home differentiation.
- The modular nature of an InsulLiving® home provides the opportunity for tailoring it to fit with the life journey of the community members i.e. starting simply when finances are tight and growing with a family through the addition of new modules. Finally modularity means that downsizing, deconstruction and recycling are easily catered for.



The Builder

“Game changing system that benefits builders.”

The most dramatic benefits of the InsulLiving® system are achieved by the builder. With this system, the entire house shell is erected without any framing, brickwork or plasterboard.

The panels do the work of all these components, and they can be erected by non trade labour. The finished house will look as good as any other traditionally built home in the street but it is constructed in a fraction of the time and with significantly less material.

The astute builder will be able to satisfy the growing market for sustainable residential building and save money as he constructs homes to meet our climatic conditions, and needs of the future.

It is time for a change to how Australian homes are built, and the InsulLiving® system offers the opportunity for the progressive builder to meet these changing requirements with an efficient and effective system that still meets the aesthetic standards of the community. An InsulLiving® home is a beautiful home, costing far less to build, in much less time, and with ongoing savings to the home owner and resident.

Simply it is Quicker, Leaner, Smarter, Greener – Everyone wins.

The InsulLiving® Builder benefits:

- Quicker build time – reaches ‘lock up’ stage faster than traditional build methods.
- Quicker build times lead to improved cash flow and the ability to meet housing demands more quickly.
- The InsulLiving® system comprises a very limited number of components with the panel acting as a structural member, insulation, internal and external cladding.
- Fewer trades to be coordinated, means a simplified building process.
- Less building materials compared to the traditional approach.
- The opportunity to differentiate and build a home that meets Australia’s future housing needs.
- Access to Bondor’s fully engineered and CodeMark accredited building system assists with council approval and the certification process.
- Snap together design makes training labourers a breeze.
- InsulLiving® lightweight flatpucks offer better access to difficult sites and improved delivery times to regional areas.

The InsulLiving® System “Achieves More. With Less.”

Single Storey Traditional build – 8 steps	Single Storey InsulLiving® build – 4 steps
1 Steel / timber wall framing	Base channel, InsulWall,® top roof Channel
2 Roof trusses (steel or timber) truss roof	1
3 Services – electrician / plumber	2 Services – electrical/ plumbing
4 Roof – tiles, metal sheeting	2
5 Battens, ceiling, insulation	3 Lay roof, insulation, ceiling in one step with SolarSpan® roof panels
6 Brick / clad external	3
7 Sheet interior with plasterboard	4 Render exterior, finish interior as normal
8 Render exterior & finish interior	4





The Home Owner

“Freedom and efficiency for a modern lifestyle.”

The needs of the Australian home owners are also changing.

When it comes to designing and building their home, whilst they maintain the desire to achieve optimum aesthetics and quality, home owners are much more aware of the environmental impacts. With the cost of living on the rise, they are also increasingly conscious of the short and long term economy of the products they choose, which includes maintenance and running costs. The InsulLiving® system addresses all the needs of today’s environmentally conscious home owner, providing freedom of design, reduced cost and build time and savings in energy for the life of the home.

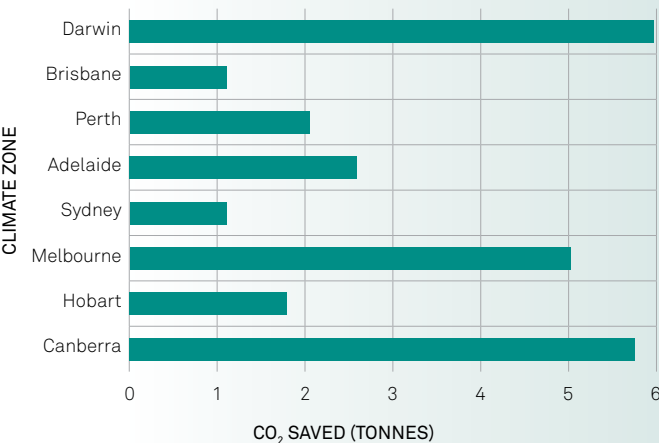
Building with insulated panels is the future for residential accommodation in Australia. The Bondor InsulLiving® system comes fully engineered and tested and the benefits are clear throughout the entire building supply chain. House construction as we know it is about to change and the InsulLiving® system is at the forefront of this revolution. The system is Quicker, Leaner, Smarter and Greener.

The benefits to the home owner:

- Freedom and flexibility in designing their home.
- Quicker build time in comparison to traditional builds means earlier occupancy.
- Thermal efficiency resulting in significant ongoing energy savings.
- Acoustic benefits of the insulated panels dampening outside noise and further enhancing their experience.
- Peace of mind that the life of their long term investment will not be shortened due to structural damage caused by termite infestation.
- Ease of maintenance and the simplicity of future additions (due to the modularity of the system), helps in preserving the overall aesthetics and integrity of the home for years.
- High ceilings provided by the SolarSpan® insulated roofing system results in a greater sense of open space.
- More liveable home with better re-sale value.

Reduce Energy Bills by Up To 50%

InsulLiving’s 8-Star Carbon Emissions Saving (Tonnes / Year)



Note: Additional Carbon Savings achieved from InsulLiving’s 8-star rating over 6-star.

- All new homes in Australia must have a minimum 6-star energy rating, most homes built before energy ratings were introduced in 2003 are 2 stars or less.
- The InsulLiving® system combined with sympathetic design allows us to go beyond the minimum 6-star rating and achieve 8-star and more.
- Studies have shown that for each 1 star improvement in energy star rating a 3% increase in selling price can be achieved. For example: A \$400,000 house moving from 6 to 8 star gains \$24,000

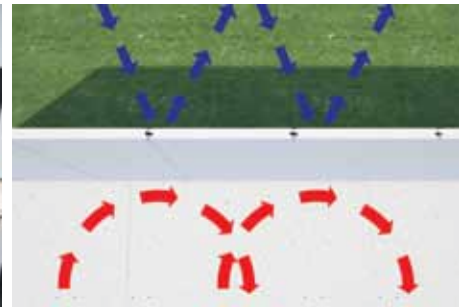
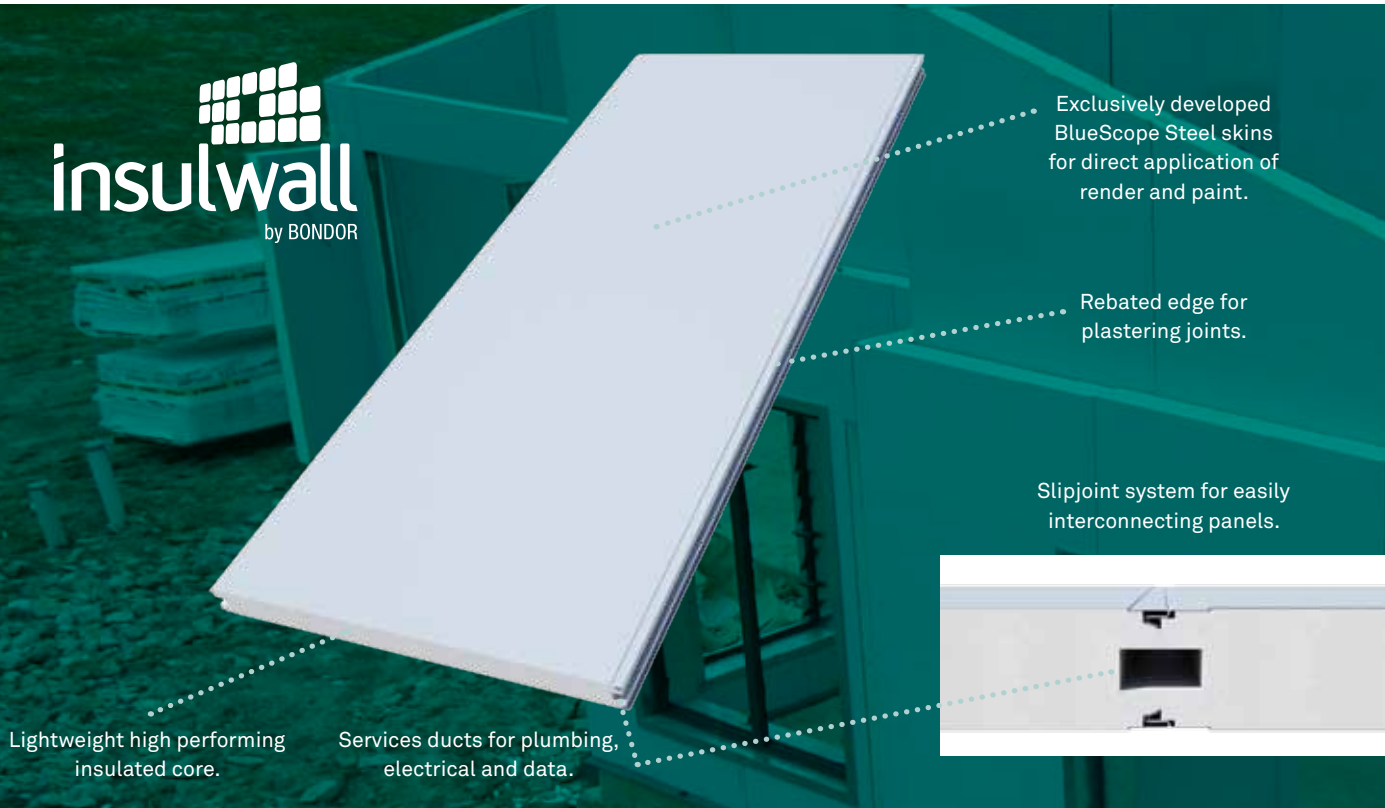


The InsulLiving® System

“A fully engineered, BCA and CodeMark™ compliant Building System that is lightweight, straight forward and green.”



CODEMARK™



InsulWall®

InsulWall® by Bondor® is a complete walling system combining insulation between two steel skins to form a structural and load bearing panel. InsulWall® panels lock easily together, and when coupled with SolarSpan® roofing, they form a fully insulated, structural shell. InsulWall® is produced using innovative steel, exclusively made by BlueScope Steel, which allows the direct rendering on the outside, and painting on the inside, without costly and time consuming additional layers.



The InsulLiving® difference

Bondor's InsulLiving® System combines not only lightweight and strong insulated roofing and walling but also residential specific floor and roof channels as well as bracing options offering builders and designers a fully engineered, BCA compliant building system purpose designed for use in Australia, that is acceptable even in cyclonic regions.



Service ducts for electrical cabling.

Lightweight high performing insulated core.

Alternative, SolarSpan® Elegance ceiling finish option – “VJ” look.

Service ducts for electrical cabling.

COLORBOND® pre-finished painted roof and ceiling.

Capable of long spans and low pitches of 3°.

Deep pans optimized for high water carrying capacity.

Simple installation with interconnecting slipjoint and fix.



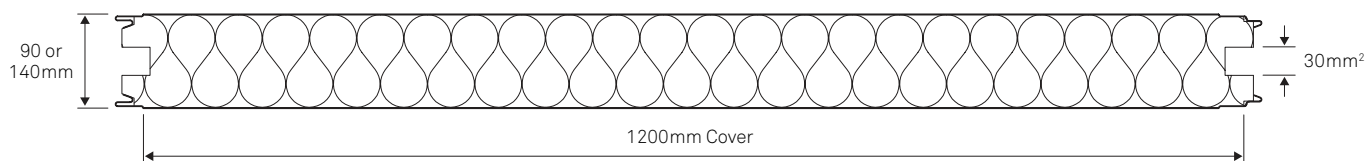
SolarSpan®

SolarSpan® by Bondor® combines roofing, insulation and ceiling in one durable, functional and attractive panel. It is up to 50% faster to install than conventional roofing including trusses and insulation. Large spans are achievable, reducing the need for support structures and enabling spacious living areas.

It offers an attractive smooth ceiling without the need for plastering or painting and superior thermal performance when compared to a traditional roofing system and maintains its insulating integrity for the life of the home.

- Bondor® has developed the InsulLiving® system to address the changing times and needs.
- InsulLiving® offers advantages to Designers, Developers, Builders, Home Owners and Communities.
- InsulLiving® houses are as beautiful as any well constructed modern house in the street.
- InsulLiving® homes offer a more comfortable living environment in all climatic conditions.





Panel Specifications

WIDTH	THICKNESS	STEEL THICKNESS	CORE MATERIAL
1200mm	90 & 140mm	0.6mm (standard)	Standard core EPS SL grade, other core types available

Panel External Coating

External coating will be strictly to the guidelines as per DuSpec Specification Sheet (Exterior) (issue 2 dated 19/01/2010) using Dulux AcraTex Coventry Coarse for InsulWall® by Bondor.®

Panel Internal Coating

Internal coating will be strictly to the guidelines as per DuSpec Specification Sheet (Interior) (issue 2 dated 19/01/2010) Dulux Acratex Wash and Wear 101 Advanced L/G for broad wall and Dulux Acratex Wash and Wear Kitchen and Bathroom L/G for wet areas to InsulWall® by Bondor.®

Technical Data

PANEL THICKNESS (MM)	90	140
Mass (kg/m²)	11.8	12.5
U value (W/m²K)	0.43	0.27
R value (m²K/W)	2.35	3.69

Wind Loading

Non-Cyclonic

WIND CLASS	140MM THICK EXTERNAL WALL – MAXIMUM WALL HEIGHT / SPAN (M)
N2	5.4
N3	4.2
N4	3.6

Note: For engineering assumption and criteria refer to Bondor® technical support.

Early Fire Hazard Properties

AS1530.3 Indices

Ignitability	0
Spread of Flame	0
Heat Evolved	0
Smoke	2–3

Cyclonic

WIND CLASS	140MM THICK EXTERNAL WALL – MAXIMUM WALL HEIGHT / SPAN (M)
C1	3.6
C2	3.0

Note: For engineering assumption and criteria refer to Bondor® technical support.

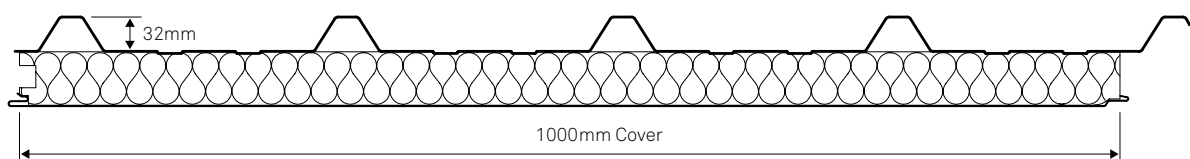
Further information is available in the technical manual including:

- Bracing capacity
- Axial load
- Support of cupboards and bracket loading

Acoustic Properties

Rw value for InsulWall® is 24–25.

Refer Bondor® for your specific application.



Panel Specifications

WIDTH	CORE MATERIAL	LENGTH	THERMAL CONDUCTIVITY	MAX SKIN TEMPERATURE PERMITTED	ADHESIVE	UNDERSIDE FINISH
1000mm cover	SL Grade Polystyrene 13.5kg/m ³	Cut to order Min 1800mm	0.038 W/mK	80°C	Thermosetting two part adhesive (CFC free)	Smooth or Elegance

The polystyrene used in SolarSpan® is CFC free, has added fire retardant and ant/vermin deterrent. Generic engineering certification of the SolarSpan® Patio System is available for residential patios

Panel Skin Details

STEEL FACE	THICKNESS	SUBSTRATE	GLOSS LEVEL	COLOUR
Upper skin	0.42mm (bmt)	Zincalume® AZ150 G550 Steel	25%	Surf Mist® Shale Grey® Paperbark® Classic Cream® Pale Eucalypt® Dune® Headland®
Lower Skin	0.6/0.5mm* (bmt)	Metallic Coated G300 Steel	25%	Surf Mist®

Technical Data

PANEL THICKNESS (MM)	50	75	100	125	150
Weight kg/m ²	10.58	10.94	11.30	11.64	11.98
R value at 8°C (m ² K/W)	1.6	2.3	2.9	3.6	4.2
R value at 20°C (m ² K/W)	1.6	2.2	2.8	3.5	4.1

Early Fire Hazard Properties

AS1530.3 1989

INDEX	TEST RANGE	EXTERNAL TOP SKIN
Ignitability	0 – 20	0
Spread of Flame	0 – 10	0
Heat Evolved	0 – 10	0
Smoke	0 – 10	1

Wind Loading

WIND CLASS	PANEL THICKNESS								
	100mm			125mm			150mm		
	Max Span (m)		Max. Cantilever (mm)	Max Span (m)		Max. Cantilever (mm)	Max Span (m)		Max. Cantilever (mm)
	Single Span	Multi-Span		Single Span	Multi-Span		Single Span	Multi-Span	
N2	5.1	6.0	1200	5.7	6.6	1600	6.0	7.2	2400
N3	3.9	4.8	1200	4.5	5.1	1600	4.8	5.1	1900
N4	3.3	3.3	1200	3.6	3.3	1400	3.9	3.3	1500
C1	3.3	2.7	1200	3.6	3.3	1600	3.9	3.6	1800
C2	2.7	2.1	1000	3.0	2.4	1200	3.3	3.0	1300

Note: For engineering assumption and criteria refer to Bondor® technical support.

* Technical data is shown for 0.6mm lower skin thickness. Data is also available for 0.5mm – please contact Bondor for more information.

About Bondor®

Bondor® is Australia's leader in complete thermal building solutions and lightweight architectural panels and façade systems and has been so since the 1950's.

Because Bondor® has been an integral part of the Australian building industry for over 50 years we have a depth of knowledge about Australian conditions, building techniques and regulations. Our experience covers manufacturing, design and installation on lightweight panel systems supported by our in-house technical support and engineering team.

Construction of the InsulLiving® Project House (built on the Sunshine Coast in 2011) confirms our confidence in the InsulLiving® system. The InsulLiving® home was designed as a positive energy home that reduces the demand for heating and cooling and returns power back to the grid.



The Bondor® advantage:

- Manufacturing operations within easy reach with sites in Queensland, New South Wales, Victoria, Tasmania, South Australia and Western Australia.
- The biggest range of insulating core options including Expanded Polystyrene (EPS), Polyisocyanurate (PIR), and Mineral Wool, to suit every application.
- A reputation and experience that was first developed through the supply and installation of temperature controlled buildings.
- The pioneer in the development of residential insulated roofing products, leading the Australian market for over 20 years.
- Continued industry leadership with the development of the InsulLiving® system for residential house construction.
- A commitment to research and development through an in-house team of engineers and technical support staff as well as close relationships with Australian universities and research establishments.
- A service offer that includes strong back up, engineering and technical support.
- The tenacity to develop and improve our products for example the development of the breakthrough InsulLiving® system in partnership with BlueScope Steel and Dulux Acratex over a period of about 5 years.



SolarSpan® and InsulWall® is readily available, with Bondor® manufacturing and distribution facilities across Australia.



The InsulLiving® Life Cycle

Bondor's sustainable future for Australia.



The InsulLiving® edge

“It’s time for a change in the way houses are built in Australia.”



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- InsulLiving® houses are as beautiful as any well constructed modern house in the street.
- InsulLiving® homes offer a more comfortable living environment in all climatic conditions.

For more details contact your local Bondor® office.





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Leaders in Thermal & Architectural Building Solutions

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Metecno Pty. Limited.

ABN 44 096 402 934

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