Fletcher Insulation
Building Better, Together

# Multi-residential

## Building better living spaces, together

Apartments (low to high rise) and townhouses

# Fletcher Insulation helps Australia's leading architects and builders design more sustainable multi-residential living spaces.

## Good design creates healthy, human-centred buildings.

In multi-residential environments, designing for thermal comfort supports the health and well-being of residents. Well-insulated buildings help control noise as well as temperature. Long-lasting, sustainable insulation materials contain energy costs through passive cooling and warming. They also support healthier indoor air quality by providing effective condensation management solutions. Fletcher Insulation specialises in developing industry-leading insulation solutions.

Our technical and service teams support architects and specifiers to design best practice for multi-residential living.



# Creating sustainable, healthy, and comfortable home environments

**More Australians, including families with children, are calling multi-residential style places home.**

According to the 2021 Census, around 30% of the population now lives in apartments and townhouses, with the latter rising consistently over the past decade.[1]

Affordability and the desire to be closer to work, transport, and other amenities, has seen the demand for apartment and townhouse living rise. With thermal and acoustic comfort high on the priority of residents, building designers need to accommodate these needs and deal with the challenges created by higher density living.

Fletcher Insulation provides architects and specifiers with the insulation solutions they need to create multi-residential buildings that are both energy-efficient and supportive of people's wellbeing at home.

Using our range of sustainable insulation materials—in walls and ceilings, under floors and roofs, around building services, and in and around the HVAC—we help designers build more comfortable townhouse and apartment environments.

## How insulation helps to create better multi-residential environments

The existence of party walls leads to more intrusive noise between apartments or townhouses. As well as noise through adjoining walls, sound from above and below commonly disturbs residents.[2] Insulation helps dampen noise between homes.

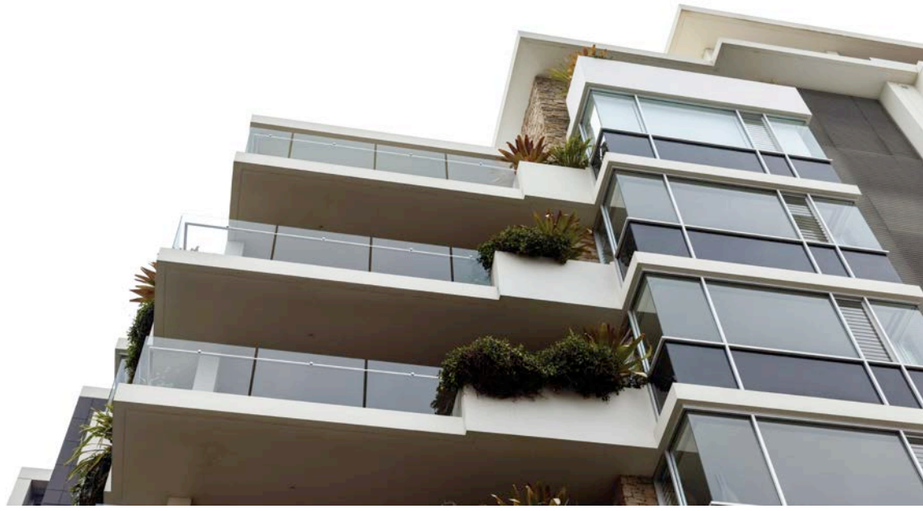
Insulation is an essential ingredient of a thermally comfortable residence. It supports a higher energy efficiency rating and thermal performance under the Nationwide House Energy Rating Scheme (NatHERS). In turn, a higher energy efficient rating helps attract buyers, renters, and investors to well-designed multi-residential developments.

With around 24% of Australia's overall electricity use and 12% of total carbon emissions produced by residential buildings,[3] insulation helps manage a home's thermal environment. A well-insulated building reduces the need for energy-hungry heating and cooling appliances and cutting power bills.

At Fletcher Insulation we'll help you specify the optimal insulation solutions for use in your multi-level residential building projects.

We provide solutions that contribute to creating:

- a healthier indoor environment for people to live in
- reduced energy solutions to control costs and environmental impact
- higher Green-Star ratings and WELL certification
- safe, fire-resistant construction systems.



# Taking a holistic approach to the health and wellbeing of people living in multi-residential buildings

**As our urban areas grow, multi-residential buildings offer a more affordable, sustainable style of housing for many Australians.**

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But these types of buildings create different challenges.

Both airborne and structure-borne noise can disturb residents and diminish their quality of life.[4]

- Poor sound insulation in party walls, floors, and ceilings can cause stress for residents when noise from neighbouring townhouses or apartments disturbs sleep.
- For families with children, the noise from children playing can disturb others, creating challenges for parents and tension between neighbours.[2]
- Noise from internal building services, such as lifts, air-conditioning, and plumbing, threatens to be a constant source of irritation for residents.

Designing for thermal comfort and good indoor air quality can be challenging for designers, especially for individual apartments in high rise complexes. Orientation, glazing and proximity to the roof are some key factors that come into play.

- Keeping windows closed for thermal comfort can lead to $CO_2$ concentrations above 1,000 ppm, which has a significant impact on human health and cognition.[5]
- Thermal comfort can also be a safety issue in highrise buildings. Without it, residents tend to open their windows to regulate the air temperature, creating falls hazards especially for young children.[6]

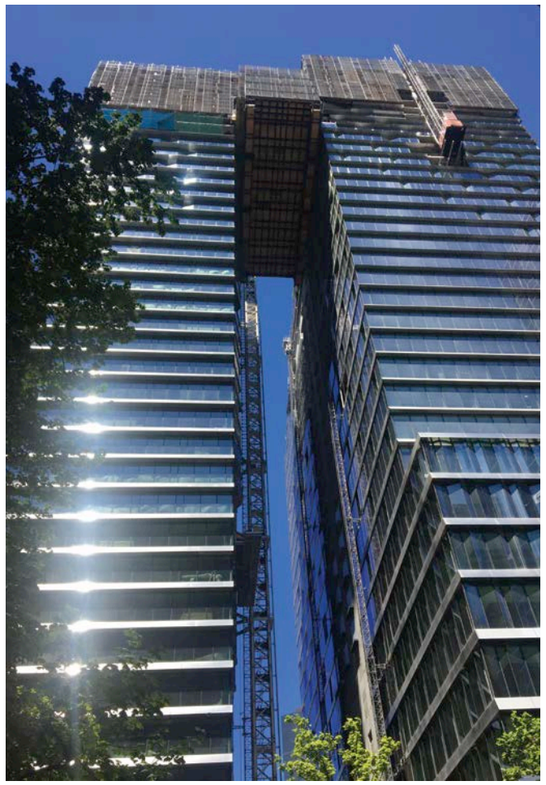
Whether you're designing a townhouse complex or a multi-storey apartment building, the challenge for architects is to create comfortable living conditions with cost-effective solutions.

## The importance of acoustic comfort

**To create the best conditions for people to live in, all homes should be designed for people's acoustic comfort.**

- There's plenty of research proving that environmental noise pollution adversely impacts people's health and wellbeing. Not only is it annoying, but excessive noise also disturbs people's sleep, and can lead to cognitive impairment. There's also good evidence it's associated with increased blood pressure and heart disease.[4,6]
- Whether the source is external (such as from traffic, construction, and machinery) or internal (air-conditioners, plumbing, loud music and floor impact noise from neighbouring tenancies), noise leads to poor sound quality within the home. This can make it difficult to understand speech or enjoy music, and result in overall discomfort.
- In multi-residential properties, a lack of acoustic privacy can lead to conflict between neighbours and impact an individual's psychological wellbeing.

Fletcher Insulation creates insulation products based on the principal that good design supports the health and wellbeing of all people in our community.



## Controlling indoor thermal comfort, air quality and building condensation

**For apartment dwellers, temperature is ranked as the second most important of the top four, indoor environment quality (IEQ)[6] factors after light. The other two are noise and air quality.**

**Nevertheless, dwellings have often been described by residents as being 'too cold in winter' and 'too hot in summer' with the thermal comfort of individual units varying considerably.[6,7] The energy efficiency provisions in the National Construction Code (NCC) 2022 set out to address this, with an increase in the minimum energy rating for individual units in apartments.**

A well-managed indoor environment supports the wellbeing of its occupants. Living in a home that's thermally comfortable and has a healthy indoor air quality, is essential to support a good quality of life.

It also helps contain energy costs and avoids excessive emissions caused by artificial heating or cooling systems.

The key to Fletcher Insulation's approach is to devise a project specific solution for designers and developers of multi-residential building projects, aligned with NCC requirements.

We offer a range of insulation solutions that help reduce the reliance on artificial cooling and heating systems and improve indoor air quality in townhouse and apartments.

Working with some of the country's leading building designers, we've supplied products for many multi-residential projects including:

- Collins Arch, Melbourne (pictured above)
- Elizabeth Quay precinct, The Towers Perth
- The Orchards Apartments, Norwest Sydney
- Quay Quarter Two, Sydney
- Ocean apartments, Gold Coast
- Meriton Units, Parramatta—Towers 1 and 2, Sydney
- Incontro of Subiaco, Perth
- Meriton Units, Zetland—Towers 1 and 2, Sydney
- Landmark Apartments, St Leonards Sydney
- Deicorp Units Projects, Redfern and Westmead, Sydney
- Ed Square Units, Edmondson Park, Sydney
- The Podium, Oran Park, Sydney
- Halcyon Apartments, Subiaco, Perth

## Protecting people and buildings from fire

**Fire-safe homes protect both people and property. For designers of apartments and townhouses, it means selecting building materials that keep people safe.**

Best practice passive fire protection strategies work by isolating a fire and protecting residents should a fire break out in an adjoining apartment. They also mitigate both property and equipment damage.

Insulation installed in external and internal walls, floors, ceilings, roofs, and around HVAC applications, is an integral part of fire safety control within any residential building.

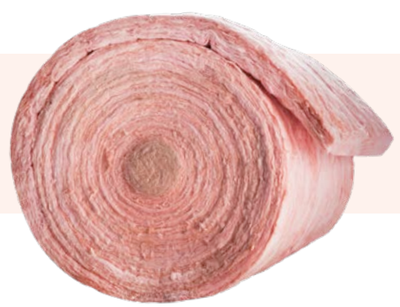
As well as National Construction Code compliance, designers, developers and builders must also consider the standards and minimum requirements of insurers. Choosing insulation that fails to meet these specifications could mean higher insurance premiums.

Using Fletcher Insulation's glasswool products in external cladding and internal partition applications ensures your building complies with AS/NZS 1530.1 for combustibility.

Fletcher Insulation has developed a range of rigorously tested insulation solutions. Made of sustainable, non-combustible or low flammability materials, our products are designed to keep people and buildings safe.

Whatever the specific challenge of your building design, our expert team are on-hand to help you select the best fire-safe solutions for your building project.

**Fletcher Insulation's glasswool products are deemed non-combustible when tested to AS 1530.1, offering compliance for use in external cladding and internal partition applications, providing peace of mind.**



## For the good of the planet

**As climate change continues to make an impact, people are looking for ways to conserve their energy usage and limit their energy costs.**

Insulation delivers on energy-efficiency, cutting household costs and emissions. It also creates more comfortable, liveable environments for people in multi-residential buildings.

Fletcher Insulation continues to invest in sustainable manufacturing processes.

We are working to reduce the carbon footprint of the built environment by:

- making insulation with zero Ozone Depletion Potential (ODP).
- ensuring our insulation products support healthy indoor air quality—our products contain no harmful levels of Volatile Organic Compounds (VOCs).
- using recycled materials in our manufacturing process wherever possible. About 80% of the glass used in our glasswool insulation is recycled—by transforming a waste product, we avoid further landfill pollution.


SUSTAINABLE
Made up of up to **80% recycled** content that might otherwise be destined for landfill.

**Up to 80% of the glass used in our glasswool insulation production is recycled.**

# Building envelope applications

**A high-performance building envelope is the cornerstone of an energy efficient building. It also creates a quieter, fire-safe, and more thermally comfortable environment for people to live in.**

**To develop the best insulation solutions, we take a holistic approach. We consider a broad range of performance parameters including energy efficiency, thermal comfort, acoustic comfort, fire resistance, indoor air quality, condensation management, thermal bridging, air tightness, and durability.**

## Roofing

Effective roof insulation will help reduce noise disturbance and provide a protective thermal, condensation control, and fire-resistant layer.

Fletcher Insulation has a comprehensive range of insulation solutions to meet the most demanding performance requirements for different types of multi-residential buildings.

- We recommend the Permastop® range of building blankets for low-rise, metal-roofed apartments and townhouses.
  - ✓ Made from 80% recycled materials, Permastop® products offer outstanding thermal and acoustic properties.
  - ✓ They reduce heat transfer and minimise internal reverberation and distracting external noise, such as rain on a metal roof.
  - ✓ They also minimise the risk of condensation forming under metal roof cladding.
- In tiled-roof townhouses, Sisalation® Multipurpose EHD (456) is an effective insulating layer. Working as a flexible, vapour and water barrier, this excellent insulation roof sarking product is also suitable for wall applications. Provides a second layer of protection from water ingress to the building, in both roof and wall applications.

In taller high rise apartments, concrete is commonly used as the primary roofing material.

- For multi-residential buildings with a concrete roof structure, your best choice is Pink® Thermal Slab.
  - ✓ With exceptional thermal and acoustic absorption properties, this product drives energy efficiency and helps control noise and temperature fluctuations common to concrete roofs.
  - ✓ Codemark certified providing confidence and certainty through the issue of a Certificate of Conformity, demonstrating 'evidence of suitability' requirements of the National Construction Code.

Pink® Thermal Slab provides excellent fire performance for ceiling lining applications, achieving a AS 5637.1 Group 1 NCC fire classification.

- In applications where visual appeal of the roof lining is not required, we also recommend the Permastop® range for insulating buildings with a concrete roof. Permastop offers overall energy efficiency, keeping buildings cooler in summer and warmer in colder climates.

Fletcher Insulation has a comprehensive range of insulation solutions to meet the most demanding performance requirements for all types of multi-residential buildings.

By specifying products from the Fletcher Insulation range, not only will you help protect your building from structural damage down the track, you'll create comfortable living spaces where people live and thrive.

## External walls

Insulation in external walls delivers on energy efficiency and cost savings. It's effective at regulating thermal conditions within the building, and meeting stringent fire performance requirements.

As well as addressing thermal comfort and energy efficiency, insulation helps dampen intrusive external noise, contributing to a peaceful home environment for apartment and townhouse dwellers.

Townhouses and apartments with up to three storeys are commonly made with timber or steel stud frames.

- In these constructions, we recommend Australian-made Pink® Wall Batts.
  - ✓ Made from bio-soluble glasswool, this proven insulation product is non-combustible and offers excellent thermal and acoustic performance.
  - ✓ It also features a comprehensive range of R-values, densities, and thicknesses, and includes up to 80% recycled content.
- When you're looking for superior acoustic performance, choose Pink® Soundbreak®. Not only does Pink® Soundbreak® reduce sound transfer from both the external environment and between adjacent rooms, it also has excellent thermal qualities.

Typically, townhouses and apartments up to three storeys use brick veneer and/or lightweight cladding, both of which require a building membrane as part of the external wall system.

For colder climate zones Sisalation® Vapawrap® Vapour Permeable Residential Wall Wrap is recommended to protect the build and help manage condensation. It allows moisture vapour inside the structure to escape, and assists in minimising drafts, enabling build insulation to perform more effectively.

For double-brick construction, Sisalation® Foam Cell Multipurpose is recommended where it is suitable and permitted. This extra heavy duty 3-in-1 multipurpose building membrane performs as insulation, a thermal break and a vapour barrier.

For other climate zones and applications, the Fletcher Insulation Technical team can assist architects and specifiers with the right building membrane for the project.

Apartments built with more than four storeys are typically made of concrete with a steel stud framing system.

- To provide effective thermal and acoustic insulation for these buildings, we recommend Pink® Partition insulation.
- Designed for metal-framed partitions, Pink® Partition insulation is available in a range of dimensions to suit standard steel stud sizes. Australian-made Pink® Partition insulation meets National Construction Code (NCC) performance requirements for energy efficiency, sound insulation, and fire resistance.

All Fletcher Insulation glasswool insulation suitable for external walls is CodeMark certified for thermal performance.

FletcherSpec pro®

When selecting the ideal insulation products for your design, we recommend using the FletcherSpec Pro® design specification tool. It quickly calculates Total System R-values to meet all National Construction Code (Section J) requirements. With outstanding data integrity and calculation accuracy, this handy tool is kept up-to-date with the latest NCC criteria, giving architects and specifiers complete confidence when specifying insulation products.


**Download FletcherSpec Pro® at the App Store.**

# Internal fit-out applications

**In higher density living environments, noise can be a real problem. Effective insulation in internal walls, floors, and ceilings helps manage the acoustic and thermal environment, as well as boosting energy efficiency and fire-resistance. Our range of internal ceiling and wall insulation solutions are designed to deliver long-lasting, exceptional performance under varying environmental conditions.**

## Ceilings

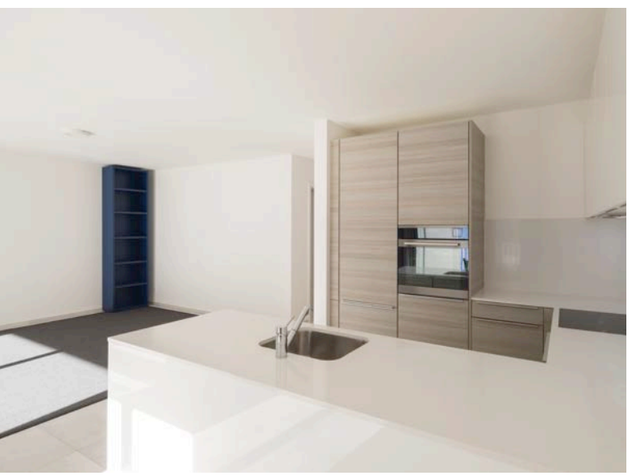
Acoustic insulation for ceilings in a multi-level building helps keep the peace between neighbours and dampens the noise caused by HVAC and services pipes.

In townhouses and low rise apartments, Pink® Ceiling Batts are a popular choice to manage both sound and internal temperature.

- Lightweight, flexible, and resilient, they're a non-combustible glasswool insulation product made from up to 80% recycled content.
- Pink® Ceiling Batts maintain their firmness over time, ensuring they remain in place and maintain optimum thermal performance.

For apartments with four or more levels and depending on thermal requirements of your project, we recommend Pink® Partition insulation.

- Pink® Partition insulation is specially designed for installation in multi-storey buildings with concrete floors and suspended ceilings.
- With its exceptional thermal and acoustic performance, this product helps create a comfortable, energy-efficient home.



## Walls

Fletcher Insulation's products are ideal for use within party and intertenancy walls. They help reduce the noise and regulate the thermal conditions inside each apartment or townhouse. They're also an effective fire safety barrier between tenancies.

- When building party walls for townhouses and low rise apartments with a timber or steel stud frame construction, use Pink® Wall Batts.
- For multi-story apartments of four or more floors and constructed with walls featuring a steel stud frame, specify Pink® Partition insulation.
  - ✓ National Construction Code (NCC) compliant for energy efficiency, fire safety, and acoustic and thermal performance.
  - ✓ Pink® Partition is available in densities of 11, 14, 24 and 32kg/m3 to fit standard steel stud spacings.

**Made in Australia from up to 80% recycled content, the Pink® Partition range is designed to meet AAAC recommendations—from low to high ratings. It's another example of how Fletcher Insulation provides architects and specifiers with the products they need to deliver optimum acoustic performance in all multi-residential spaces.**

| Thickness mm | Density kg/m³ | Material R-value | Sound Absorption Coefficients at Frequencies (Hz) of: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100 | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 5000 | NRC | αw |
| 50 | 11 | R1.2 | 0.15 | 0.16 | 0.63 | 0.88 | 0.98 | 0.99 | 1.00 | 1.01 | 1.06 | 0.85 | 0.85 (H) |
| 50 | 14 | R1.3 | 0.14 | 0.12 | 0.59 | 0.86 | 1.00 | 1.02 | 1.02 | 0.99 | 1.04 | 0.85 | 0.85 (H) |
| 50 | 24 | R1.4 | 0.16 | 0.17 | 0.69 | 1.02 | 1.09 | 1.03 | 1.07 | 1.04 | 1.06 | 0.95 | 0.95 |
| 50 | 32 | R1.5 | 0.08 | 0.16 | 0.66 | 1.04 | 1.10 | 1.02 | 1.03 | 1.05 | 1.03 | 0.95 | 1.00 |
| 75 | 11 | R1.8 | 0.26 | 0.27 | 0.91 | 0.99 | 1.04 | 1.00 | 1.06 | 1.05 | 1.11 | 1.00 | 1.00 |
| 75 | 14 | R1.9 | 0.24 | 0.24 | 0.91 | 1.01 | 1.03 | 1.00 | 1.08 | 1.03 | 1.06 | 1.00 | 1.00 |
| 75 | 32 | R2.2 | 0.18 | 0.32 | 0.98 | 1.10 | 1.08 | 1.05 | 1.07 | 1.06 | 1.09 | 1.05 | 1.00 |
| 90 | 24 | R2.5 | 0.36 | 0.43 | 1.16 | 1.11 | 1.05 | 1.07 | 1.04 | 1.07 | 1.06 | 1.10 | 1.00 |
| 90 | 32 | R2.7 | 0.32 | 0.58 | 1.14 | 1.05 | 1.05 | 0.99 | 1.05 | 1.04 | 1.03 | 1.05 | 1.00 |
| 110 | 11 | R2.5 | 0.40 | 0.42 | 1.08 | 1.10 | 1.02 | 1.09 | 1.09 | 1.06 | 1.06 | 1.05 | 1.00 |

## HVAC/SERVICES

To create a comfortable living environment, most new multi-residential buildings are fitted with Heating, Ventilation and Air Conditioning (HVAC) systems.

But they're also big users of energy.

As the multi-residential buildings make up more of Australia's housing stock, the challenge for designers to contain energy usage and emissions is pressing.

Along with building envelope insulation, HVAC system insulation helps boost the performance of heating and cooling systems and cuts energy usage in any environment.

Our sound attenuation products complete our holistic systems approach by minimising noise when the HVAC is switched on.

Acting as both a noise barrier as well as a noise absorber, Soundlag 4525C is an excellent insulation product for reducing noise break-out from pipes, valves, fan housings, and ductwork in multi-residential buildings. With its external foil facing layer, Soundlag 4525C is also an excellent fire-resistant barrier.


## SINIAT

When choosing building insulation materials, designers can rely on the Siniat systems, certified using insulation products by Fletcher Insulation. The Siniat range of selection tools are robust, save time and effort and include:

- **Siniat Blueprint** a handy technical manual for lightweight steel and timber frame construction; includes complete wall and ceiling insulation solutions for commercial and multi-residential projects.
- **Siniat System Selector** is an online tool that enables selection of the most appropriate and cost-effective wall and ceiling systems.
- **Siniat's library of BIM and CAD files** for all types of systems. Handy to confirm which Fletcher Insulation product is best to use in your design.

# Low level apartment building

**Fitout: suspended ceiling**
Pink® Batts

**Building envelope: metal clad roofing**
Permastop® Building Blanket

**Building envelope: external walls**
Pink® Partition or Pink® Batts and Sisalation Vapawrap Vapour Permeable Membrane

**Fitout: internal: partition walls**
Pink® Partition or Pink® Soundbreak®

# High rise apartment building

**Fitout: suspended ceilings**
Pink® Partition

**Building envelope: concrete roofing**
Pink® Thermal Slab

**Fitout: internal partitions**
Pink® Partition

**Fitout: between floors**
Pink® Thermal Slab

**Building envelope: external walls**
Pink® Partition

# Townhouse

**Building envelope: metal clad roofing**
Permastop® Building Blanket

**Fitout: ceilings**
Pink® Batts

**Building envelope: tile roofing**
Sisalation® Multipurpose EHD (456)

**Fitout: internal partition walls**
Pink® Soundbreak

**Building envelope: external walls**
Pink® Batts or Pink® Soundbreak and Sisalation® Vapawrap® Vapour Permeable Membrane.

Sisalation® Foam Cell Multipurpose may be used for double brick construction where it is suitable and permitted.

# Selecting Fletcher Insulation products for multi-residential buildings

| Product selection | Product description | Roofing | External walls | Internal walls | Ceilings, partitions and services | Slabs and soffits | HVAC |
|---|---|---|---|---|---|---|---|
| **Roof Razor®** | An insulation spacer specifically designed for metal roof construction. It sits between the roof structure and the external cladding, creating a space for insulation to recover to its full nominal thickness, reducing thermal bridging. **Roof Razor** is a spacer solution to meet the Section J requirement of the National Construction Code (NCC) where insulation must maintain its position and thickness between purlins forming a continuous thermal barrier. | ✓ | | | | | |
| **Permastop® Building Blanket** | Suitable for use in metal roof applications, as well as under slab concrete soffit applications. Provides effective thermal and acoustic performance by reducing heat transfer and minimising the internal reverberation and flow of unwanted nuisance noise generated from adjacent buildings/rooms and/or the external environment. Additionally, **Permastop Building Blanket** aids in minimising the risk of condensation that can form with metal cladding. | ✓ | | | | ✓ | |
| **Permastop® Tropic Building Blanket** | Specifically designed for use in Australia's hot and humid tropical regions to provide increased condensation protection to buildings. In these regions, it is customary to install the vapour barrier on the upper side of the building blanket which faces the roof sheet. This ensures the vapour barrier is installed on the warm side of the building to provide greater protection against the risk of condensation. | ✓ | | | | | |
| **Pink® Partition** | Designed for use in commercial metal framed partitions, wall systems and ceilings, **Pink Partition** insulation delivers exceptional thermal and acoustic performance, contributing to the effective construction of comfortable, energy efficient commercial buildings. It is typically used in partition walls of low and high rise buildings and commercial fit-out education projects such schools and universities where acoustic control is essential. **Pink Partition** may also be used as a ceiling overlay for enhanced thermal and acoustic performance. The range encompasses multiple densities, thicknesses and dimensions to suit commercial steel framed studs and to satisfy a broad spectrum of building requirements. Specification and installation of Australian made **Pink Partition** insulation enables designers and builders to satisfy National Construction Code (NCC) requirements pertaining to Energy Efficiency, Sound Insulation Provisions and Fire Resistance Performance. | | ✓ | ✓ | ✓ | | |
| **Pink® SonoMatt Blanket®** | Suitable for applications such as partitions, screens and baffles. The black tissue facing makes it ideal for installation behind perforated linings to improve the overall acoustic properties of the internal lining. In addition to providing exceptional acoustic performance, **Pink SonoMatt Blanket** provides the added benefit of thermal insulation and increases the overall Total R-value of a building envelope, thus improving the energy efficiency of a building. This allows architects and specifiers to satisfy both thermal and acoustic design requirements with the specification and installation of a single product. | | | | ✓ | | |
| **Pink® Thermal Slab** | Suitable for use in commercial under slab soffit applications where thermal and acoustic properties are pivotal in controlling noise levels and temperature fluctuations of concrete roofs, floors and walls. **Pink Thermal Slab** provides excellent fire performance for ceiling lining applications achieving a AS 5637.1 Group 1 NCC fire classification, and delivers excellent thermal performance, which in turn improves the energy efficiency of a building. It also provides the added benefit of exceptional acoustic absorption, which allows architects, specifiers and builders to satisfy both thermal and acoustic design requirements through the specification and installation of a single product. | | | | | ✓ | |

# Selecting Fletcher Insulation products for multi-residential buildings

| Product selection | Product description | Roofing | External walls | Internal walls | Ceilings, partitions and services | Slabs and soffits | HVAC |
|---|---|---|---|---|---|---|---|
| **FI32 Semi-Rigid** | The medium density specification of **FI32** boards and blanket (32kg) provides excellent thermal properties and NRC acoustic values making it suitable for internal and external walls, and roofing systems where a high degree of acoustic performance is required. Available in both roll or board form to allow for greater design flexibility in commercial building applications including HVAC ducting applications. Also suitable for insulating storage tanks, process vessels, appliance cabinets, electrostatic precipitators, plant rooms and for use in the manufacture of acoustic baffles. | | ✓ | ✓ | | ✓ | ✓ |
| **FI48 Rigid Board** | The higher density specification of **FI48** boards (48kg) provides greater thermal properties and NRC acoustic values making it suitable for internal and external walls, and roofing systems where the highest degree of acoustic performance is required for the building's design. Also suitable for HVAC ducting applications, insulating storage tanks, process vessels, appliance cabinets, plant rooms and for use in the manufacture of acoustic baffles. | | ✓ | ✓ | | | ✓ |
| **Sisalation® Foam Cell Multipurpose** | Designed for use in wall and roof applications, **Sisalation Foam Cell Multipurpose** is an extra heavy duty 3-in-1 multipurpose sarking solution: insulation + thermal break + vapour barrier with a Group 2 fire hazard property rating. Ideal for use in NCC Building Classifications 2 to 9, it can reduce up to 95% of the sun's radiant heat, minimises the risk of condensation and acts as an effective water and vapour barrier when installed according to AS/NZS 4200.2. | ✓ | ✓ | | | | |
| **Sisalation® Multipurpose EHD (456)** | An extra heavy duty building membrane, suitable for use in tiled roof and wall applications as a flexible vapour and water barrier. Designed to provide an effective approach to managing condensation in the roof or wall space by creating a vapour barrier and allowing bulk insulation to perform more effectively, along with its ability to reflect radiant heat. The wall application is suitable behind light weight cladded wall systems in Climate Zones 1 only. | ✓ | ✓ | | | | |
| **Sisalation® Metal Roof MD (433) and HD (453)** | Suitable for use as a vapour and water barrier sarking solution in commercial and residential metal roof and wall applications, where the metal roof span does not exceed 900mm unsupported or is 1200mm or less supported. Designed to provide an effective approach to managing condensation in the roof space by creating a vapour barrier and assist in minimising draughts, enabling bulk insulation to perform more effectively. Additionally, they provide an effective secondary skin against moisture, vapour, wind, heat and dust penetration. | ✓ | ✓ | | | | |
| **Sisalation® Vapawrap™ Vapour Permeable Metal Roof** | Suitable for use as a vapour permeable roof sarking solution in commercial and residential metal roof applications in Australia's colder climate zones, where the metal roof span does not exceed 900mm unsupported or is 1200mm or less supported. Provides an effective approach to managing condensation in the roof space by allowing the controlled escape of moisture from within the building. It also restricts the ingress of liquid water and dust from the outside environment and assists in minimising draughts, enabling bulk insulation to perform more effectively. | ✓ | ✓ | | | | |
| **Sisalation® Vapawrap™ Vapour Permeable Residential Wall Wrap** | Suitable for use as a vapour permeable wall wrap solution in low rise commercial and residential applications in Australia's colder climate zones. Designed for walls and gable applications in brick veneer and behind fibre cement cladding. Provides an effective approach to managing condensation in walls by allowing for moisture vapour inside the structure to escape, and assists in minimising draughts, enabling bulk insulation to perform more effectively. | | ✓ | | | | |
| **Sisalation® Tuff Wrap™ Wall Wrap (497)** | Suitable for use as a vapour and water barrier wall wrap solution in commercial and residential brick veneer wall applications. Designed to act as a barrier that helps prevent water vapour from entering the building, as well as restricting the ingress of liquid water and dust from the outside environment, and assisting in minimising draughts for more effective bulk insulation performance. | | ✓ | | | | |
| **Quadzero Loaded Vinyl Barrier** | A foil faced flexible acoustic barrier highly suitable for inside cavities or over lightweight wall, ceiling and floor constructions. Ideal for auditorium theatres, partitions and meeting rooms. | | | | ✓ | | ✓ |

# Compliant building performance

**Fletcher Insulation conducts extensive research and product testing ensuring all our products and solutions are compliant with the latest standards and building code requirements.**

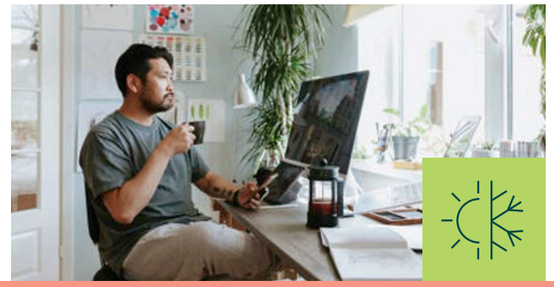

## Fire

**Safety is paramount in building design, with the reduction of fire hazards and prevention of spread of fire considered critically important for designers of multi-residential buildings, especially considering the risk of evacuating residents in the event of a fire.**

Our specialists will advise you on passive fire prevention requirements for roofs, external wall construction, internal wall systems and HVAC services, including:

- **AS 1530.1** Combustibility **NCC 2022 Vol 1** C2D10
- **AS 1530.2** Flammability of materials **NCC 2022 Vol 1** C2D10, C2D11 & Specification 7
- **AS/NZS 1530.3** Fire Hazard Properties **NCC 2022 Vol 1** C2D11 & Specification 7
- **AS 5637.1** Fire hazard properties (Group No) for wall and ceiling lining materials **NCC 2022 Vol 1** C2D11 & Specification 7
- **AS 3959** Bushfire Construction up to BAL–FZ

Our products and solutions are compliant to the above relevant standards and safe for use in external cladding and internal partition applications, offering peace of mind and permitting architects to express design freedom in selecting cladding and partition materials.



## Thermal performance

**It is well established that thermal comfort contributes enormously to the wellbeing of building occupants, which is most critical in multi-residential buildings. With the breadth of climate zones across Australia we make sure your design works whether in the extreme heat, extreme cold, or somewhere in between.**

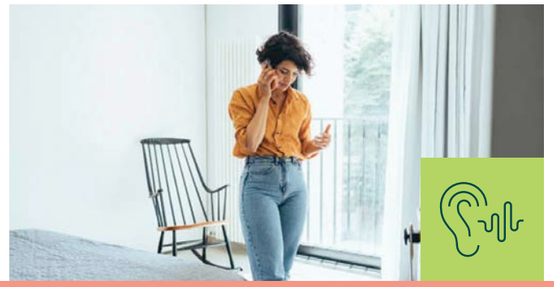
We also offer advice on NCC Class 1 (townhouses) and Class 2 (apartments) thermal compliance, upgrade specifications and for general installation to deliver healthier and more sustainable outcomes.

Our Bulk Insulation products comply with:

- **AS/NZS 4859.1** Materials for the thermal insulation of buildings
- **AS 3999** Thermal Insulation of dwellings—Bulk insulation—Installation requirements
- **AS 4254** Part 1 and Part 2 Ductwork for air-handling systems in buildings
- **AS 4508** Thermal resistance of insulation for ductwork used in building air-conditioning
- **NCC 2022 Vol 1** Part J6D6 Part J3D5-J3D10 and **NCC 2022 Vol 2** ABCB Housing Provisions Sections 13.2 and 13.7

Building membranes/wraps specification and installation compliance with:

- **AS/NZS 4200.1** Pliable building membranes and underlays—materials
- **AS 4200.2** Pliable building membranes and underlays—Installation requirements
- **NCC 2022 Vol 1** F3D3



## Acoustics

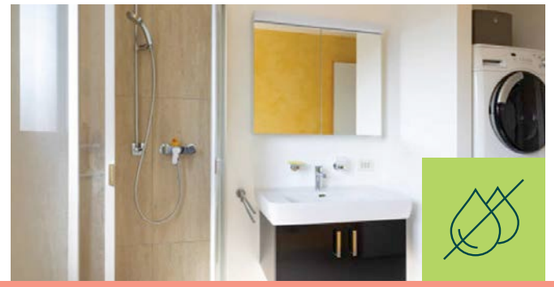
**Multi-residential buildings have their own set of demands when it comes to the acoustic treatment of walls, ceilings, and services. Our solutions deliver peaceful environs for residents.**

Our products assist in reducing airborne sound through ductwork, and wall and floor construction, in accordance with:

- **NCC 2022 Vol 1** Section F7, Specification 28, and **NCC 2022 Vol 2** ABCB Housing Provisions Section 10.7
- **AS/NZS ISO717.1** Acoustics—Rating of sound insulation in buildings and of building elements
- **AS/ISO 11654** Acoustics—Rating of sound absorption—Materials and systems
- Project specific high-performance acoustics

Our high density acoustic insulation helps target broad spectrum frequency bands for all round acoustic attenuation in:

- Specialised plant and server rooms
- HVAC ductwork



## Condensation and moisture management

**With the vast contrasts in climates and myriad construction systems available, specifying the correct material layers can be very challenging.**

We help identify which systems work best in different climates to avoid interstitial condensation—leaving the worry and specification details to us.

We can assist in compliance with:

- **AS/NZS 4200.1** Pliable building membranes and underlays—materials
- **AS 4200.2** Pliable building membranes and underlays—Installation requirements
- Moisture control membranes tested to **ASTM-E96** (Vapour control) and compliant with **AS 4201.4** (Water control)
- **NCC 2022 Vol 1** F8D3 & **NCC 2022 Vol 2** ABCB Housing Provisions Section 10.8.1
- Project specific humidity control

Our membranes and insulation systems can be tailored for vapour permeable or barrier construction, with nominated air control layers and air-tight tapes, so you don't have to worry about matching project specific climatic and/or humidity control requirements.

# Compliance and design assistance

**Fletcher Insulation is an active member of the Green Building Council of Australia (GBCA)**, exceeding 10 years of recognition for our commitment to providing energy efficient insulation and acoustic solutions to the residential, commercial and HVAC markets.

**As a long-term member of the GBCA**, we are upholding our commitment to providing products for a sustainable built environment. As a GBCA member it enables us to contribute our technical and commercial expertise to the development of new Green Star rating tools and obtain access to all Green Star information. This information includes project directories, technical guidelines to support and/or assist our customers with Green Star project submissions and example submissions. The benefit to architects and specifiers, is that they can meet and raise the Green Star rating of their building projects by incorporating our range of Fletcher Insulation products.

**WELL is the leading tool for advancing health and well-being in buildings globally.** Fletcher Insulation can provide you with advice and solutions to help you deliver improved results in the areas of air quality, thermal comfort and sound.

**CodeMark Certificate of Conformity 30006**

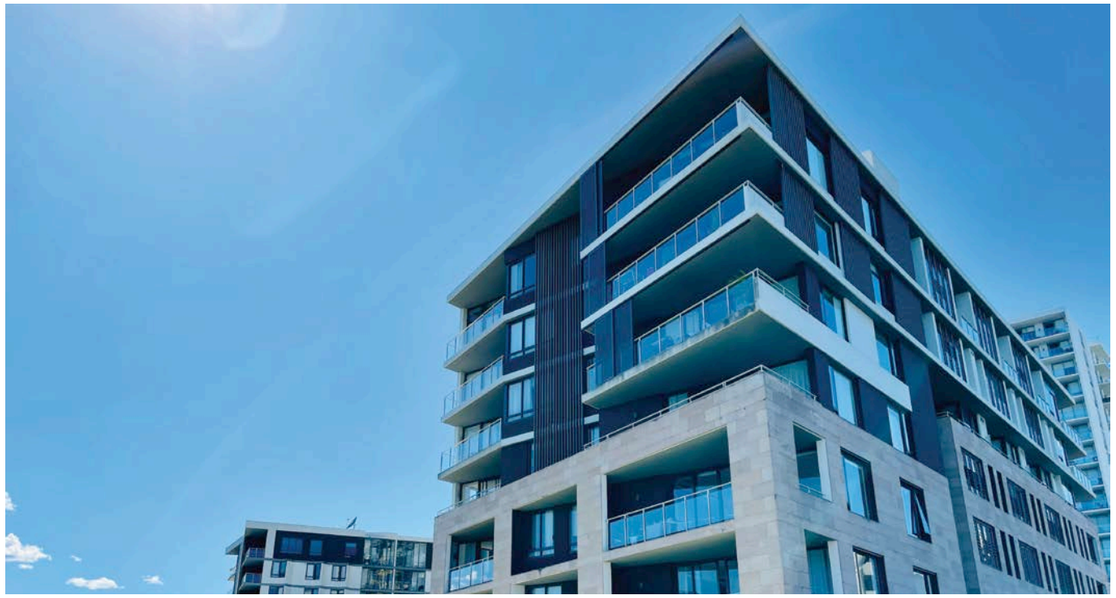
Fletcher Insulation has a comprehensive range of glasswool products that are CodeMark certified for thermal performance. This product certification is designed to provide confidence and certainty to regulatory authorities and the market through the issue of a Certificate of Conformity. It is one of several options available for meeting the 'evidence of suitability' requirements of the National Construction Code (NCC). Importantly, our CodeMark 30006 certification:

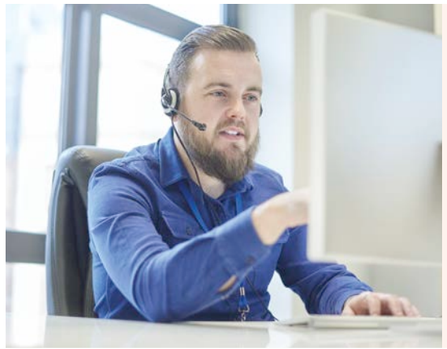
- proves the listed products meet the evidence of suitability requirements of the NCC
- ensure they are capable of performing as intended
- streamline the building consent and inspection process

Further, they are listed on the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) register.


**FletcherSpec Pro®** is a Fletcher Insulation app developed to overcome many traditional issues architects and builders face when specifying insulation. The app provides a near complete support structure, guiding users through the entire insulation specification process.

**FletcherSpec Pro®** delivers centralisation of the multitude of tasks associated with typical System R-value calculations including but not limited to; determining the relevant climate zone, referencing applicable energy efficiency requirements, considering solar absorption values of roof cladding and selecting the correct insulation products for the application. This drastically minimises the need to manually cross reference inconsistent or out-dated handbooks, technical data sheets and so on. Instead, users simply answer a series of targeted questions which the app uses to determine relevant energy efficiency requirements as outlined in the National Construction Code Deemed to Satisfy provisions. The app then progresses to calculate the Total R-value of the design based on the inputs entered by the user.





## Technical support

Fletcher Insulation's Technical Service is an invaluable resource for architects and specifiers. Our insulation experts understand what's needed to satisfy a diverse range of building applications, including the complex requirements of the education and health sectors. Providing the right advice when you need it, our technical service team has quality solutions to help solve your building insulation challenges.

**Contact Fletcher Insulation on 1300 654 444 or email technical@insulation.com.au**

## Technical Data Sheets and Installation Guidelines

Visit **insulation.com.au** to discover the excellent array of technical information available to download, whether you need to get into the product details yourself, or reassure the project team that our products are compliant, and safe and easy to install.

## REFERENCES


**1** Australian Bureau of Statistics (2021), Population: Census: People/Housing, https://www.abs.gov.au/statistics/people/housing/housing-census/2021, accessed 8 March 2023.

**2** Tucker, R., Andrews, F., Johnson, L. and Palmer, J., (2022), Architects' professional perspectives on child-and family-friendly apartment design in Australia, Journal of Asian Architecture and Building Engineering, 21:6, 2262-2276, DOI: 10.1080/13467581.2021.1972813

**3** Australian Government, Department of Climate Change, Energy, the Environment and Water, Government priorities, Residential buildings, https://www.energy.gov.au/government-priorities/buildings/residential-buildings, accessed 8 March 2023.

**4** Münzel, M., Gori, T., Babisch, W, and Basner,M., (2014), Cardiovascular effects of environmental noise exposure, European Heart Journal, 2014 Apr 1; 35(13): 829–836.

**5** Alawode, A. and Rajagopalan, P, (2022), Feasibility of net zero energy high rise apartment buildings in Australia, Solar Energy, Volume 231 2022: 158-174, ISSN 0038-092X, https://doi.org/10.1016/j.solener.2021.11.030.

**6** Carre, A., Williamson, T. and Soebarto, V., (2019), Satisfaction with the Indoor Environment Quality of Apartments in Inner-Urban Melbourne, Proceedings of the 53rd International Conference of the Architectural Science Association (ANZAScA 2019), pp.537-546.

**7** Browne G (2021) Apartment Buildings Stock Model—connecting AEMO electricity usage data to the built environment, CSIRO, Australia.

## Addendum:

# Multi-residential buildings acoustic requirements

### Extract from Association of Australasian Acoustical Consultants Guideline for Apartment and Townhouse Acoustic Rating Version V1.0

**Table 1: Indicative sound insulation performance of the various star ratings in respect to controlling typical noise sources within domestic environment**

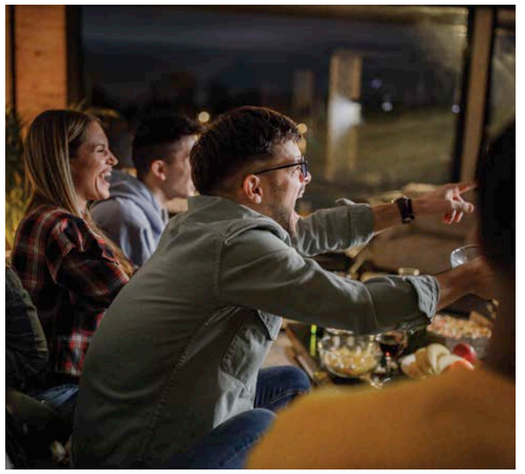
| | Sound insulation expressed as $D_{nT,w}$ +$C_{tr}$ | | |
|---|---|---|---|
| | 45* | 50 | 55 |
| Type of noise source | 4 Star | 5 Star | 6 Star |
| Normal speech | Not audible | Not audible | Not audible |
| Raised speech | Just audible | Not audible | Not audible |
| Dinner party/laughter | Just audible | Not audible | Not audible |
| Shouting | Audible | Just audible | Not audible |
| Small television/Small entertainment system | Audible | Just audible | Not audible |
| Large television/Large Hi-fi music system | Clearly audible | Audible | Just audible |
| DVD with surround sound | Clearly audible | Audible | Audible |
| Digital television with surround sound | Clearly audible | Audible | Audible |

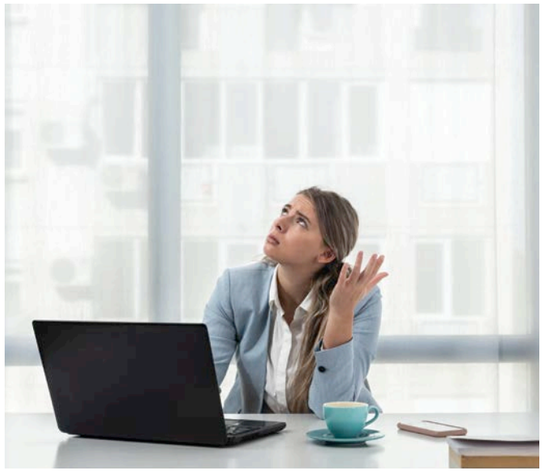
*Minimum NCC requirement.

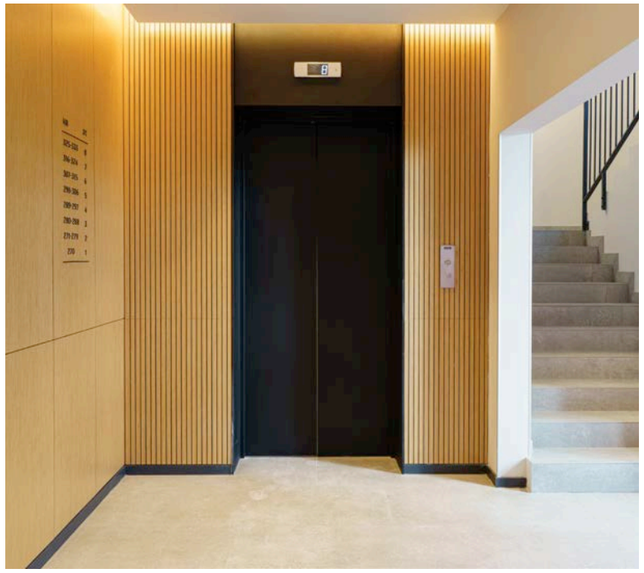
**Table 2: Minimum in-situ acoustic performance of separating walls and floors, DnT,w +Ctr**

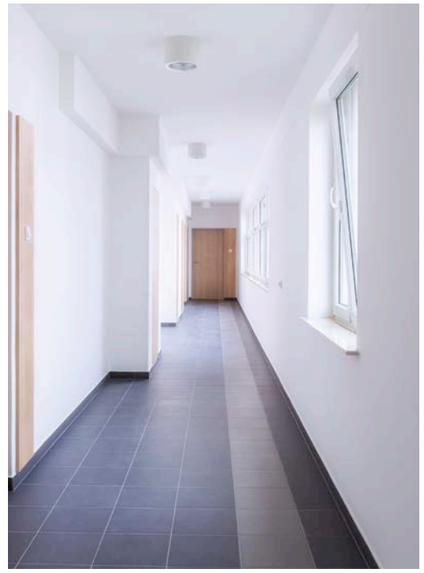
| Intertenancy activities | | 4 Star | 5 Star | 6 Star |
|---|---|---|---|---|
| (A) Airborne sound insulation for walls and floors | | | | |
| Between separate tenancies | DnT,w +Ctr ≥ | 45* | 50 | 55 |
| Between a lobby/corridor and bedroom | DnT,w +Ctr ≥ | 40 | 45 | 50 |
| Between a lobby/corridor and living area | DnT,w +Ctr ≥ | 40 | 40 | 45 |
| Corridor, foyer to living space via door(s) | DnT,w ≥ | 30 | 35 | 40 |
| (B) Impact isolation of floors | | | | |
| Between tenancies | LnT,w ≤ | 50 | 45 | 40 |
| Between all other spaces and tenancies | LnT,w ≤ | 50 | 45 | 40 |
| (C) Impact isolation of walls | | | | |
| Between tenancies | | Yes | Yes | Yes |
| Between common areas and tenancies | | No | Yes | Yes |

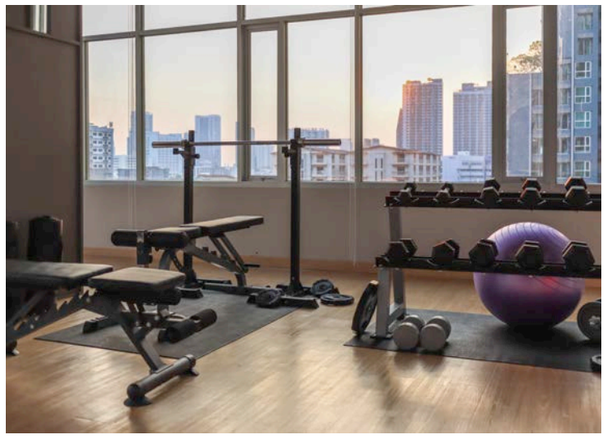
*Minimum NCC requirement.
Note: Wall and floor/ceiling systems separating sole-occupancy units in a multi-residential building must comply with the minimum acoustic provisions of the NCC.











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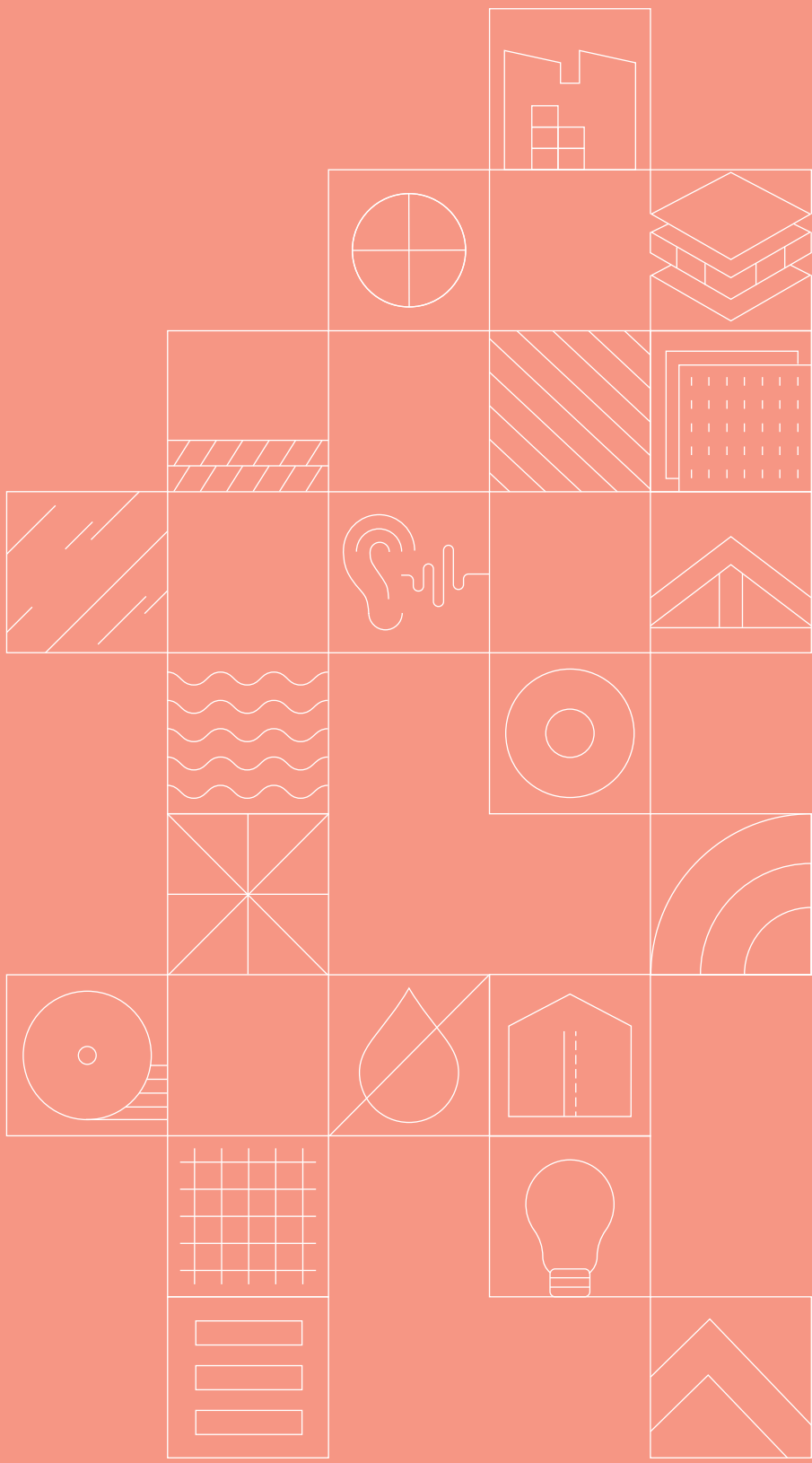
**For more information:**

phone **1300 654 444**
email **info@insulation.com.au**
visit **insulation.com.au**

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