About this Guide

The City of Port Phillip features some of Melbourne's most thoughtfully designed townhouses and low-rise apartments.

This guide showcases local case studies that integrate environmentally sustainable design (ESD) features that benefit people, place, and the planet. The logos below represent the Sustainable Design Fact Sheet pillars (developed by CASBE[1]). These pillars are used to highlight the key ESD features in each project.

Want to learn more about ESD? Click the logos below for more tips and resources.

Operational Energy

Embodied Carbon

Transport

Integrated Water Management

Urban Ecology

Indoor Environment Quality

Waste & Resource Recovery

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[1]The Council Alliance for a Sustainable Built Environment

Inkerman & Nelson, Balaclava. Photography by Tom Ross.

Tennyson St Townhouses

Location: Tennyson Street, Elwood
Year: 2023
Typology: Townhouses
Design: SKETCH
Development: Habita Property Group
Photography: Dana Beligan

Key ESD Features

Light-Coloured Roofing & External Materials

Tennyson St Townhouses features external materials with a high Solar Reflective Index (light-coloured), including roofing, brickwork, fencing, cladding and paving. Not only does this elevate the buildings' design, it also helps to reduce localised urban heat and operational energy costs, while improving thermal comfort.

Key benefits include:

- Reduces solar heat absorbed into the building fabric, keeping homes cooler during Summer.
- Improved energy efficiency due to less need for air conditioning.
- Extended lifespan of building material due to reduced heat-related deterioration.

External Shading & Building Orientation

Tennyson St Townhouse's design uses external shading and overhanging eaves to reduce heat gain during the hottest part of the day, while the buildings' eastern orientation maximises solar heat gain during Winter. This helps to keep the building cool and more comfortable for users in warmer months, while still allowing daylight to enter the buildings' internal spaces.

Key benefits include:

- Improves comfort and energy efficiency by blocking direct sunlight, reducing heat gain, and reducing energy use for air conditioning.
- Supports passive solar design by allowing winter sun while shading the building during hotter months.

Art-House Apartments

Location: Chapel Street, St Kilda
Year: 2015
Typology: Low Rise Apartments
Design: Justin Architecture
Development: 54 Chapel Street Pty Ltd
Photography: Jaime Diaz-Berrio

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Key ESD Features

Solar Access & External Shading

The Art-House Apartments are thoughtfully oriented to maximise natural light and thermal comfort. Living areas are positioned on the northern side of the building, allowing generous solar access that helps warm internal spaces during winter.

In summer, adjustable louvred shading devices minimise heat gain, reducing reliance on mechanical cooling. Together, these features ensure year-round comfort and lower operating costs for residents.

Key benefits include:

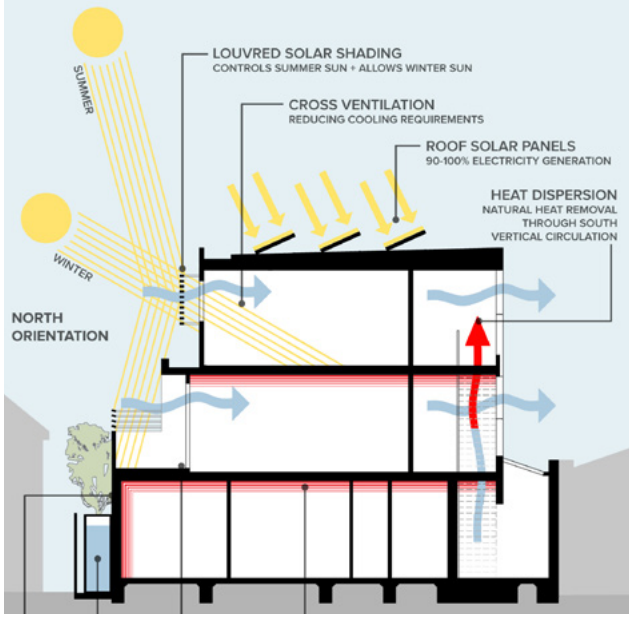
- Improves thermal comfort and energy efficiency by blocking direct sunlight during Summer, reducing heat gain, and reducing reliance on air conditioning.
- Supports passive solar design by allowing winter sun while shading the building during hotter months.

Use of Recycled Materials

Recycled bricks have been used throughout the Art-House Apartments, giving the building character while also re-purposing high-quality building materials. By reusing materials, the project significantly reduces embodied carbon emissions associated with manufacturing new bricks and helps divert construction waste from landfill.

Key benefits include:

- Reduces embodied carbon.
- Reduces construction waste entering landfill.



Prentice St Townhouses

Location: Prentice Street, St Kilda
Year: 2022
Typology: Townhouses
Design: Grant Amon Architects
Development: Niche Building Concepts
Photography: Peter Bennetts

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Key ESD Features

On Structure Planting

The Prentice Street Townhouses thoughtfully integrate greenery in the form of landscaping on the building structure and in-built planter boxes on balconies. These elements soften the built form, support the City of Port Phillip's urban forest goals, and create pockets of habitat for birds and pollinators.

Importantly, they provide residents with regular access to greenery - enhancing wellbeing and offering a stronger connection to nature within an urban setting. The added vegetation also improves resilience to extreme weather, such as heatwaves and heavy rainfall.

Key benefits include:

- Increases residents' access to nature and everyday greenery, while improving resilience to climate impacts like heat and flooding.
- Provides habitat for birds and pollinators.

Rooftop Solar

The Prentice Street Townhouses feature a rooftop Solar Photo-voltaic System with panels oriented in multiple directions to maximise solar gain. This reduces reliance on grid power, lowers energy costs, and enhances energy self-sufficiency.

Key benefits include:

- Lowers energy costs and improves energy self-sufficiency.

Inkerman & Nelson

Location: Inkerman St, Balaclava
Year: 2022
Typology: Townhouses
Design: MA+Co
Development: ICON Developments Australia
Photography: Tom Ross

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Key ESD Features

External Blind Systems & Cross Ventilation

The Inkerman & Nelson Apartments feature external retractable blinds along the northern and eastern façades, giving residents greater control over internal temperatures. These blinds provide effective shading during warmer weather, while remaining fully retractable to allow natural light in as desired.

The design also enables excellent cross ventilation, allowing residents to open windows and cool their apartments naturally while enjoying fresh air circulation. Together, these features improve thermal comfort, reduce reliance on air conditioning, lower energy use and associated operational costs.

Key benefits include:

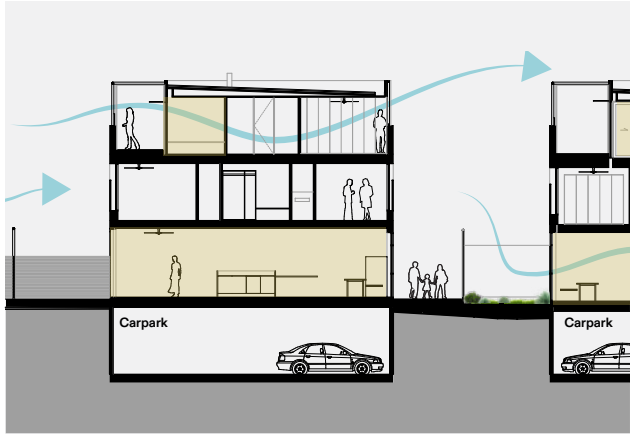
- Enhances internal thermal comfort through adjustable shading.
- Reduces reliance on air conditioning.
- Lowers energy use and associated operational costs.
- Allows natural light control to suit occupants.

Integrated Facade Planting

The project features built-in planter boxes, providing greening through the use of drought-tolerant plant species. Climbing plant species on the facade also provide in-built cooling and privacy to street-facing, ground floor windows on the north elevation.

Key benefits include:

- Integrates biodiversity even with no building setback from the street



Rainsford St Townhouses

Location: Rainsford Street, Elwood
Year: 2022
Typology: Townhouses
Design: DW Architects (ex. DesignWorx Architects)
Development: Owner-developed
Photography: Architect-supplied

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Key ESD Features

Permeable Paving & Grass-crete

Designed with Elwood's flood-prone conditions in mind, the Rainsford St Townhouses prioritise permeable surfaces to improve water infiltration. Materials such as grasscrete, loose pebbles, and tiling replace conventional concrete, allowing rainwater to seep into the ground.

This approach reduces localised flooding, protects downstream waterways from flash flooding, and contributes to a cooler urban environment by minimising the urban heat island effect.

Key benefits include:

- Reduces localised flooding by improving rainwater infiltration.
- Protects downstream environments from flash flooding
- Minimises urban heat island effect for a cooler micro-climate.
- Supports climate resilient design.
- Increased permeability reduces stormwater runoff and associated pollutants entering Port Phillip Bay.

Rooftop Solar

The Rainsford St Townhouses are fitted with a rooftop Solar Photo-voltaic System - lowering energy costs and the need to purchase power from the grid.

Key benefits include:

- Reduces energy costs by generating on-site renewable power.

Adela Apartments

Location: Docker Street, Elwood
Year: 2020
Typology: Low Rise Apartments
Design: JOST Architects
Development: Tandem Property Group
Photography: Derek Swalwell

Key ESD Features

Exposed Concrete Ceilings

The Adela Apartments feature exposed concrete ceilings that showcase the building's raw materials and add distinctive character. This also enhances thermal mass, helping regulate indoor temperatures and improve energy efficiency. By eliminating additional ceiling finishes (plaster, paint), the building reduces embodied carbon emissions and lowers material consumption during construction. The durability of concrete also lowers maintenance needs over the building's lifespan.

Key benefits include:

- Enhances thermal mass for improved temperature regulation and energy efficiency.
- Reduces embodied carbon and material use by eliminating extra ceiling finishes.
- Lower maintenance due to concrete's durability.

Deep Eaves and Cross Ventilation

The Adela Apartments incorporate deep eaves on the western, northern, and eastern façades to provide effective shading during warmer months while allowing beneficial solar gain in cooler seasons. Additionally, the building's dual east–west aspect promotes natural cross-ventilation, enhancing indoor air quality and thermal comfort year-round.

Key benefits include:

- Regulates indoor temperatures by balancing solar shading and heat gain.
- Enhances natural ventilation for improved air quality and comfort.

Ruskin Elwood

Location: Ruskin Street, Elwood
Year: 2020
Typology: Townhouses
Design: Fieldwork
Development: HIP V. HYPE
Photography: Tess Kelly

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Key ESD Features

Lot Reconfiguration and Place Activation

Located along the Elster Canal in Elwood, Ruskin Elwood consolidated two residential lots - one without water frontage - and reoriented the site north to deliver four energy-efficient homes overlooking the canal landscape.

This reconfiguration creates a strong public-private interface along the canal, enhancing natural surveillance and improving the amenity of the shared environment. The project not only benefits its residents through solar access and views but also contributes positively to the general public experience along the Elster Canal.

Energy Efficient, All-Electric Homes

Ruskin Elwood is 100% electric, fossil fuel-free in operation, and fitted with premium sustainability systems throughout, including solar panels, electric heat pumps for hot water, energy recovery ventilations systems, electric vehicle charging and Tesla Powerwall batteries.

These features significantly reduce emissions, lower energy costs for residents, and improve resilience. The project sets a strong example for well-designed, low-impact medium density living.

Key benefits include:

- Re-orientation delivers energy-efficient homes with improved solar access & views.
- Activates the open space, promotes passive surveillance and enhances amenity for all.
- Delivers fossil fuel–free, energy-resilient homes with lower emissions & energy costs.

West Beach Townhouses

Location: West Beach Road, St Kilda
Year: 2016
Typology: Townhouses
Design: Grant Amon Architects
Development: Joanne Green
Photography: Grant Amon & Peter Bennetts

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Key ESD Features

Green Wall, Passive Shading and Irrigation

The West Beach Townhouses feature a shared rooftop terrace designed to support climbing plants and greenery. Over time, vegetation has grown from ground level up the eastern façade and established itself on the rooftop structure, creating a distinctive green canopy. This greenery provides passive shading, helping to naturally cool the terrace and adjacent living spaces during summer.

The planting design also uses passive irrigation, relying on rainfall to sustain vegetation and soak up excess stormwater. This reduces runoff from the site, easing pressure on local drainage systems and helping manage flooding during heavy rain events.

Together, these features create a unique, comfortable shared space for residents, contribute to the City of Port Phillip's urban forest goals, support local biodiversity, and help mitigate the urban heat island effect for the building and its surrounds.

Key benefits include:

- Provides a unique, shaded, green shared space for residents.
- Reduces heat gain and cools the rooftop in summer.
- Supports the local urban forest and biodiversity.
- Mitigates the localised urban heat island effect for residents and neighbours.
- Enhances stormwater quality and reduces pollutants from entering Port Phillip Bay.

Chaucer Townhouses

Location: Blessington Street, St Kilda
Year: 2017
Typology: Low Rise Apartments
Design: Grant Amon Architects
Development: G.L. Construction
Photography: Peter Bennetts

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Key ESD Features

Building Orientation, Solar Gain & Passive Heating

The Chaucer Townhouses are oriented to maximise passive heating and natural light, with east–west aspects capturing morning and afternoon sun year-round. In winter, solar gain is enhanced by deciduous trees to the north, north-east and north-west allowing solar access, while in summer, the trees provide shade to reduce heat gain.

This design approach improves internal thermal comfort, reduces the need for artificial lighting, and lowers energy demand for heating and cooling.

Key benefits include:

- Maximises natural light and passive heating, reducing reliance on artificial lighting & heating.
- Enhances occupant comfort and lowers energy use through seasonal shading and sun access, contributing to pleasant internal temperatures.

Cross Ventilation

The Chaucer Townhouses are designed to maximise natural light and ventilation, with operable windows or balcony spaces on all sides. This allows residents to control light and airflow, harnessing natural breezes to cool indoor spaces. The result is improved thermal comfort and reduced reliance on mechanical heating and cooling, lowering occupants' operational energy costs.

Key benefits include:

- Comfortable internal temperatures with lower energy use for heating, cooling and ventilation.