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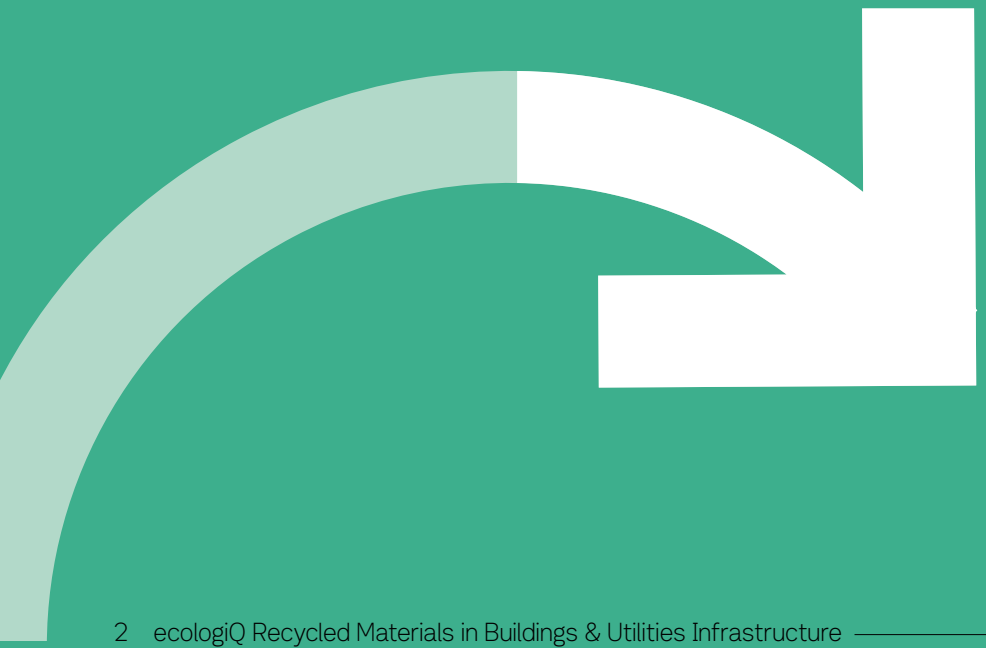
Recycled Materials in Buildings & Utilities Infrastructure

Opportunity Guide – March 2026

VICTORIA State Government

1. Executive Summary

This guide provides relevant context and a summary of current upper limits to recycled content opportunities for key materials used in the built environment.



This document provides guidance on recycled material opportunities in the built environment, including for the following project types:

- Buildings delivered by State Government agencies
- Water projects delivered by Water Authorities
- Electrical infrastructure delivered by VicGrid

In addition, the Guide summarises opportunities for recycled content on each of the project types to assist in guiding project teams toward opportunities to optimise the recycled content on their project.

Industry feedback and comments regarding this Guide are welcomed and will be considered in subsequent revisions.

This document will be updated periodically to reflect changes to market availability, updates to relevant codes and specifications, and ongoing inputs from industry.

Contents

1. Introduction

This Opportunity Guide is part of a strategic government commitment to support greater use of recycled materials in construction.

The guide provides a summary of current industry feasibility of using recycled materials including relevant Australian standards, specifications and clauses that allow or limit the use of recycled content.

The guide builds on the considerable work already undertaken across government to encourage the use of recycled materials in construction and more broadly, including the:

- Victorian Recycling Infrastructure Plan (Recycling Victoria)
- Recycling Victoria Strategic Plan (Department of Energy, Environment and Climate Action)
- Extractive Resources Strategy (Department of Jobs, Precincts and Regions)
- Social Procurement Framework (Buying for Victoria)

How to use

This guide is intended for use by designers, contractors, asset owners and others working on government buildings, water and electrical facilities projects across all project phases.

This guide can be utilised to quickly identify what recycled material opportunities exist for a range of key building material applications.

For suppliers, the guide can also be used to determine potential areas of development and demand.

Information in this guide has been drawn from standards, specifications, and available products as at the time of publishing and should be read in conjunction with the most up to date standards, codes of practice and technical notes, and supplemented by individual project research into recycled product availability and opportunity.

This guide is not a replacement for the relevant standards and specifications. This guide demonstrates the possibilities for using recycled materials in line with current design and construction standards, and product availability.

Referral must always be made to standards, specifications and contract documents.

Recycled material: Material that has been reprocessed from recovered material by means of a manufacturing process and made into a final product or into a component for incorporation into a product.

Using recycled materials

Many building materials now include recycled content, providing a practical and sustainable alternative to using only new raw materials. Recycled plastic, steel, paper, glass, and cement substitutes like fly ash or slag are commonly used in products such as insulation, concrete, plasterboard, carpet, structural steel, and panels.

Materials made with recycled content typically perform similarly with conventional products in terms of quality, price and availability. The use of recycled material supports long-term environmental and social benefits by reducing demand for raw materials, lowering embodied carbon, reducing materials going to landfill and supporting a circular economy.

Reused material: Material that would have been surplus or otherwise could have been disposed of as waste or used for energy recovery, but has instead been recovered or collected and used back into on-site project construction. Reused material keeps its original form and does not undergo recycling or manufacturing processes.

Using reused materials

Where suitable materials are available on-site, it is preferable to reuse or repurpose them rather than send them to landfill and source new or recycled alternatives. Some examples include retaining topsoil, fill, felled trees or salvageable demolition materials.

Reusing materials recovered from site clearing, excavation or demolition is often a better option than purchasing new materials (including new materials containing recycled content) as it can significantly reduce costs, lead times and environmental impacts associated with manufacturing and transport of building materials.

2. General Considerations

Listed below are some of the key considerations to make when selecting a recycled or reused material.

Environmental management:

All activities involving recycled materials (i.e. sourcing, transporting, processing and placing) must meet the relevant statutory and regulatory requirements.

This includes meeting compliance with Environment Protection Authority (EPA) requirements.

Indoor air quality:

Indoor air quality is an important consideration when selecting products and materials in a building. Maintaining good indoor quality involves ensuring products have low VOC (including formaldehyde) and ideally selecting products free from toxic chemicals such as heavy metals and polychlorinated biphenyls (PCBs).

Maintaining safe air quality for construction workers should also be considered, including ensuring appropriate safety measures when using materials containing crystalline silica* such as masonry and tiles.

Fire safety:

Building fire safety is a critical consideration in the specification of materials. Fire hazard properties of internal linings, materials and assemblies are governed by the NCC Section C1.10.

Fit-for-purpose:

Healthcare facilities prioritize materials that can be easily cleaned, are durable to heavy equipment and easy to replace in areas of high traffic.

Schools and prisons have similar durability priorities coupled with consideration around materials that cannot be easily removed or defaced.

Whole-of-Life (WoL) carbon emissions:

Use of recycled materials to replace or supplement traditional virgin materials may reduce WoL carbon emissions, but consideration should be given to all processing / recycling requirements, transport distances, and anticipated maintenance requirements and their associated emissions (e.g. collection, cleaning, processing, replacement).

Materials and products sourced locally to a project site can provide benefits to WoL carbon emissions through a reduction in transport carbon emissions. End of life material recyclability should be considered in the context of WoL assessments.

Sourcing/Supply constraints:

Selection and use of recycled materials must consider the source/ supply availability of such materials, project location (cost of material transport) and/or market availability.

Existing markets (e.g. recycled aggregates, fly ash & blast furnace slag as supplementary cementitious materials (SCMs) in concrete and recycled steel reinforcement) are readily available and commonly used to supplement / complement traditional materials in building projects.

Emerging markets (e.g. recycled plastics) are less developed. Some products in these categories are proving to be viable and beneficial alternatives to traditional virgin materials, while others coming to market may still require testing or trials. Successful trials can provide the data required to give certainty regarding an emerging recycled product's impact on engineering properties, environment, health and safety, and their reuse as part of a circular economy; and / or a consistent and reliable material supply.

Circular economy hierarchy:

The transition to a circular economy requires more than recycling. It calls for a systemic shift in how we design, produce, and manage products and materials across their lifecycle. This includes identifying opportunities for site-won reuse, adaptive reuse and refurbishing rather than rebuilding where appropriate. The 10R Framework (shown in Figure 1) offers a structured approach to navigate this shift by outlining ten strategies to reduce resource use, extend product value, and unlock new operational efficiencies.

Figure 1 – 10R Framework for a Circular Economy

From July 2025, engineered stone benchtops, panels and slabs became prohibited imports.

3. Buildings

3.1 Buildings – Authorities

Several authorities oversee the delivery and regulation of many of Victoria's public built environment construction projects.

Building and Plumbing Commission (BPC)

The BPC is the principal regulator for building and plumbing in Victoria, overseeing compliance with regulations including undertaking inspections and audits. The BPC publishes Practice Notes to inform practitioners and the community about relevant building and plumbing related legislation and standards for general guidance in respect to building or plumbing practice.

Victorian School Building Authority (VSBA)

The VSBA is responsible for designing, building and modernising schools and kindergartens across Victoria. The VSBA maintains the Building Quality Standards Handbook (BQSH) which details design and construction standards and requirements for VSBA projects.

The School Construction and Design Standards policy defines the requirements for the BQSH to ensure high-quality and inclusive designs for school facilities across Victoria.

Victorian Health Building Authority (VHBA)

The VHBA is responsible for the planning and delivery of the Victorian Government's health infrastructure program. The VHBA maintains Engineering Guidelines and Sustainability Guidelines applicable to the delivery of Victorian healthcare buildings.

VHBA has developed a Recycled materials in healthcare design and construction Health Technical Advice (HTA) which should be read in conjunction with the Sustainability Guidelines and the Net Zero Building Handbook.

Homes Victoria

Homes Victoria is an agency within the Victorian Government's Department of Families, Fairness and Housing. Homes Victoria manages the state's social housing portfolio, which includes public housing, community housing, crisis accommodation, transitional accommodation, and affordable housing.

Development Victoria (DV)

- Development Victoria is a development arm of the Victorian Government, engaging in strategic property development and urban renewal projects.
- Development Victoria projects are required to comply with the DV Sustainability Strategy, including goals related to circularity of materials and waste.

Community Safety Building Authority (CSBA)

CSBA sits within the Department of Justice and Community Safety (DJCS) and works with a range of partners in design and construction to deliver new, expanded and upgraded infrastructure for Victoria's prisons, youth justice centres and court and custody facilities, in addition to emergency services facilities and public safety features.

CSBA works with the following partners and agencies in delivering new and upgraded prisons, surf life saving centres, CFA, and SES buildings:

- **Prisons:** Corrections Victoria
- **Surf life saving centres:** Surf Life Saving Victoria
- **CFA:** Country Fire Authority (CFA)
- **SES:** Victoria State Emergency Service (VICSES)

3.2 Buildings – Codes & Standards

The below codes and standards represent the primary references for technical provisions, requirements and specifications relevant to new buildings.

National Construction Code (NCC)

The NCC is Australia's primary set of technical design and construction provisions for buildings. As a performance-based code, it sets the minimum required level for the safety, health, amenity, accessibility and sustainability of certain buildings. The Australian Building Codes Board (ABCB) produces and maintains the NCC. In general, the NCC calls on the Australian Standards (refer below) for details related to material specification and performance.

https://ncc.abcb.gov.au/

Australian Standards (AS)

The Australian Standards are developed by Standards Australia, a standards organisation recognised through a Memorandum of Understanding with the Australian government as the primary non-government standards development body in Australia. Australian Standards are frequently referenced within the NCC.

https://www.standards.org.au/

This section provides information about recycled material potential within different building applications.

The content is presented in tables specific to the different building elements, with subsections as described on the right of this page. Buildings captured by this section include the following:

- Hospitals and healthcare facilities
- Schools and kindergartens
- Public buildings including sports facilities and libraries
- Residential buildings
- Prisons
- SES buildings
- CFA buildings
- Surf life saving centres

For descriptions of various material applications as referenced in this guide, refer to **Table B1: Descriptions of materials and their applications – buildings in Appendix B.**

The recycled content opportunities tables in this section outline the current practical limits of recycled content for relevant materials by application, and notes applicable standards and practical limits that apply in relation to recycled content.

Note that this guide generally relates to current practical limits for recycled content, and that not all applications shown will have locally manufactured recycled products available in the current market. Local suppliers, manufacturers and waste processors can use this guide to determine potential areas of development and product demand.

This section is divided into the following subsections:

- Building structure
- Building envelope
- Internal walls, doors and finishes
- Internal fittings, furniture and equipment
- Building services
- External works and landscaping
- Playground and sports facilities

Building Structure

The structure includes all load-bearing elements of the building such as substructure & superstructure. It covers concrete, steel, timber, or masonry frames, as well as structural floors, beams, columns, load-bearing walls and all integral elements to the frame / structure.

Table 1: Recycled content opportunities in building structure

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Foundations, ground bearing slab, basement retaining walls, columns, beams, suspended floors, stairs/ramps, walls, and roof slab	Concrete (in situ 25-80 MPa)	Recycled aggregates and clinker	100% of cement and aggregate	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
		Glass	Up to 20% of fine aggregate by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Crushed concrete	Up to 20% of coarse aggregate by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Fly ash	Up to 35% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Slag	Up to 65% replacement of cement by weight	■	Vic made product at the max % opportunity, however, uses imported feedstock
		Triple blend – fly ash and slag	Up to 65% replacement of cement by weight Stretch target: up to 80% replacement*	■	Vic made product uses imported feedstock & is less than max opportunity %
		Silica fume	3-10% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Calcined clay	Up to 30% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
Precast panels	Concrete (precast)	Glass	Up to 20% of fine aggregate by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Crushed concrete	Up to 20% of coarse aggregate by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Fly ash	25-35% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Slag	25-50% replacement of cement by weight	■	Vic made product at the max % opportunity, however, uses imported feedstock
		Triple blend – fly ash and slag	25-50% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Silica fume	3-10% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Calcined clay	Up to 30% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
Reinforcement bar, mesh and fibres	Steel	Steel	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock

** Refer to page 31 - Concrete for further detail*

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Floor beams, joists, and slabs	Solid timber	Timber	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
Floor deck (composite slab)	Steel	Steel	17–26%		Vic made product at the max % opportunity & made from Vic feedstock
Structural frame	Steel beams	Steel	17–26%		Vic made product at the max % opportunity & made from Vic feedstock
			Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
	Steel purlins	Steel	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
	Solid timber	Timber	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
Void former	Polypropylene	Recycled polypropylene	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
Hoardings	Plastic composite board	Post-consumer composite plastic/paper packaging waste	Up to 99%		Product purchasable to the max % opportunity, however is imported from interstate

Building Envelope

Envelope refers to the external shell of the building, including external walls, cladding systems, curtain walls, roof structures and coverings, external doors and windows, thermal insulation, weatherproofing, vapour control layers, and rainwater goods.

Table 2: Recycled content opportunities in building envelope

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Masonry	Concrete blocks	Glass	Up to 37-40%	■	Product purchasable to the max % opportunity, however is imported from interstate
		Triple blend fly ash and slag	Up to 70% of replacement of cement by weight	■	Vic made product made from Vic feedstock, but is less than max opportunity %
	Clay bricks	Glass and combusted solid waste (ash)	15% glass and 20% ash as substitutes for clay	■	Product exists internationally, but not currently purchasable locally
		Recycled plasterboard, brick, stone, rubble and old mortar, together with recycled pigments	Up to 95%	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
		Clay	Direct reuse	■	Vic made product at the max % opportunity & made from Vic feedstock
Cladding	Aluminium composite panel	Aluminium	Up to 89% of aluminium content in panel	■	Vic made product uses imported feedstock & is less than max opportunity %
	Steel	Steel	17-26%	■	Vic made product at the max % opportunity & made from Vic feedstock
	Fibre cement board	Sludge	0-4%	■	Product purchasable to the max % opportunity, however is imported from interstate
	Wood plastic composite	Recycled, high-density plastics (post-consumer), and recycled wood from furniture cut-offs, shavings, sawdust (pre-consumer)	Up to 95%	■	Product purchasable to the max % opportunity, however is imported
Air tightness/vapour barriers Vapour barrier (façade, roof and under slab)	Polyethylene film	Polyethylene	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock
Roller shutter door	Steel	Steel	17-26%	■	Vic made product at the max % opportunity & made from Vic feedstock
Window system – framing / profiles	Aluminium	Aluminium	Up to 20%	■	Product purchasable to the max % opportunity, however is imported from interstate
	Unplasticised polyvinyl chloride (uPVC)	Unplasticised polyvinyl chloride (uPVC) pellets	Percentage recycled pellets not stated	■	Product exists internationally at the max % opportunity, but not currently purchasable locally

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Gutters and downpipes	Steel	Steel	17-26%		Vic made product at the max % opportunity & made from Vic feedstock
	Polyvinyl chloride (PVC)	Recycled polyvinyl chloride (PVC)	Up to 85%		Product exists internationally at the max % opportunity, but not currently purchasable locally
	Aluminium	Aluminium	Up to 90%		Product exists internationally at the max % opportunity, but not currently purchasable locally
Roof sheeting	Steel	Steel	17-26%		Product purchasable to the max % opportunity, however is imported from interstate
Roof tiles	Various (concrete, terracotta)	Various (concrete, terracotta)	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
Thermal and acoustic insulation	Glass wool	Glass	88-100%		Vic made product made from Vic feedstock, but is less than max opportunity %
	Stone wool	Slag and recycled stone wool	Up to 50%		Product purchasable to the max % opportunity, however is imported
	Cellulose insulation	Paper / cardboard fibres	80% of cellulose content		Vic made product at the max % opportunity & made from Vic feedstock
	Polyester	Polyester	Up to 100%		Vic made product made from Vic feedstock, but is less than max opportunity %
	Polyethylene terephthalate (PET) felt	PET (e.g. plastic bottles)	Up to 80%		Vic made product at the max % opportunity & made from Vic feedstock
	Extruded polystyrene (XPS)	Polystyrene	Up to 90%		Vic made product at the max % opportunity & made from Vic feedstock
	Fibre insulation	Textiles (denim, cotton, polyester)	Up to 100% of fibre content		Vic made product at the max % opportunity & made from Vic feedstock
	Wool	Sheep's wool	Up to 100% of wool content		Vic made product at the max % opportunity & made from Vic feedstock
Window system – glazing	Glass	Glass	Up to 60%		Product purchasable to the max % opportunity, however is imported
	Cellular polycarbonate panels	Polycarbonate (post-consumer recycled bottles)	Up to 50%		Product purchasable, however is imported & is less than the max opportunity %
External solar shading & louvres	Aluminium	Aluminium	50-90%		Vic made product at the max % opportunity, however uses imported feedstock
	Stainless steel	Steel	Up to 90%		Vic made product uses imported feedstock & is less than max opportunity %

Internal walls, doors and finishes

This subsection includes internal walls, doors and partitions, along with surface treatments applied to internal elements, such as floor finishes, wall finishes, ceiling systems, and decorative elements such as skirtings and architraves.

Image on right: Peninsula University Hospital Paediatrics.
Photo by Peter Bennetts.

Table 3: Recycled content opportunities in internal walls, doors and finishes

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Internal partitions	Internal partitions - Polyethylene/ polypropylene	Polyethylene/polypropylene	Up to 100%		Product purchasable to the max % opportunity, however is imported from interstate
	Aluminium glazed partition	Glass	Up to 60%		Product purchasable to the max % opportunity, however is imported
		Aluminium	75-100%		Product purchasable to the max % opportunity, however is imported
Wall and ceiling linings	Plasterboard (paper-lined gypsum)	Paper-faced gypsum panel	Up to 100% of paper lining 5-100% of gypsum		Vic made product made from Vic feedstock, but is less than max opportunity %
	Cross laminated timber (CLT)	Reclaimed wood	Up to 100%		Product exists internationally at the max % opportunity, but not currently purchasable locally
	Plastic composite board	Post-consumer composite plastic/paper packaging waste	Up to 100%		Product purchasable to the max % opportunity, however is imported from interstate
	Compressed straw panel	Wheat and rice straw	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
Wall and floor tiles	Various (typically porcelain or ceramic)	Vinyl	Up to 89%		Product purchasable to the max % opportunity, however is imported
		Glass	Up to 80%		Product purchasable to the max % opportunity, however is imported from interstate
		Porcelain	Up to 100%		Product purchasable to the max % opportunity, however is imported from overseas
		Cork	Up to 100%		Product purchasable to the max % opportunity, however is imported from overseas
		Terrazzo (slag, glass, brick, rubble)	Up to 80%		Product purchasable to the max % opportunity, however is imported from interstate

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Wall protection	Various	Aluminium	Highest available	🟥	Product purchasable to the max % opportunity, however is imported
		Rubber	Up to 100%	🟥	Product purchasable to the max % opportunity, however is imported
		Post-consumer composite plastic/paper packaging waste	Up to 100%	🟥	Product purchasable to the max % opportunity, however is imported from interstate
Ceiling tiles and panels	Composite ceiling tiles	Post-consumer composite plastic/paper packaging waste	Up to 100%	🟥	Product purchasable to the max % opportunity, however is imported from interstate
	Steel	Steel	Highest available	🟥	Product purchasable to the max % opportunity, however is imported from overseas
Resilient flooring	Vinyl (PVC)	Vinyl (PVC)	Up to 89% Up to 25% post-consumer plastic waste (from the above)	🟨	Vic made product made from Vic feedstock, but is less than max opportunity %
	Linoleum	Post consumer linoleum	Up to 45%	🟥	Product purchasable to the max % opportunity, however is imported
	Plastic composite flooring	Recycled carpet and soft plastic	100%	🟥	Product purchasable to the max % opportunity, however is imported from interstate
	Laminate	Recycled wood	Highest available	🟥	Product purchasable to the max % opportunity, however is imported from overseas
Acoustic panels	Glass wool	Glass	88-100%	🟨	Vic made product made from Vic feedstock, but is less than max opportunity %
	Stone wool	Slag and recycled stone wool	Up to 50%	🟥	Product purchasable to the max % opportunity, however is imported
	Cellulose insulation	Paper/cardboard fibres	100% of cellulose content	🟥	Product purchasable, however is imported & is less than the max opportunity %
	Polyester	Polyester	Up to 80%	🟨	Vic made product at the max % opportunity, however uses imported feedstock
	Polyethylene terephthalate (PET) felt	PET (e.g. plastic bottles)	Up to 80%	🟨	Vic made product at the max % opportunity, however uses imported feedstock
	Fibre insulation	Textiles (denim, cotton, polyester)	Up to 100% of fibre content	🟩	Vic made product at the max % opportunity & made from Vic feedstock
	Wool	Sheep's wool	Up to 100% of wool content	🟩	Vic made product at the max % opportunity & made from Vic feedstock

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Carpet	Nylon	Nylon	Up to 100% of pile fibre		Product purchasable to the max % opportunity, however is imported
		Recycled PET (rPET)	Up to 100% of backing		Vic made product at the max % opportunity, however uses imported feedstock
Underlay	PU, PET or rubber	PU foam	Up to 90%		Vic made product at the max % opportunity & made from Vic feedstock
		Rubber (from tyres)	Up to 94%		Product purchasable to the max % opportunity, however is imported from interstate
Timber floor	Solid timber	Timber	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
Coatings	Renders (internal)	Paper	Up to 100%		Product purchasable to the max % opportunity, however is imported
Ground surface indicator mats (for accessibility)	PET	Recycled PET (rPET)	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
Skirting and architraves	Extruded polystyrene	Recycled polystyrene	Up to 95%		Product exists internationally at the max % opportunity, but not currently purchasable locally
	Unplasticised polyvinyl chloride (uPVC)	Unplasticised polyvinyl chloride (uPVC) pellets	Up to 100%		Product exists internationally at the max % opportunity, but not currently purchasable locally
Tile adhesives	Various	Rubber (from tyres)	<10%		Vic made product at the max % opportunity & made from Vic feedstock

Internal fittings, furniture and equipment

Refers to fixed internal items that support building use, such as built-in joinery (reception desks, wardrobes, kitchen units), railings and window treatments.

Image on right: New Footscray Hospital Entrance Lobby.

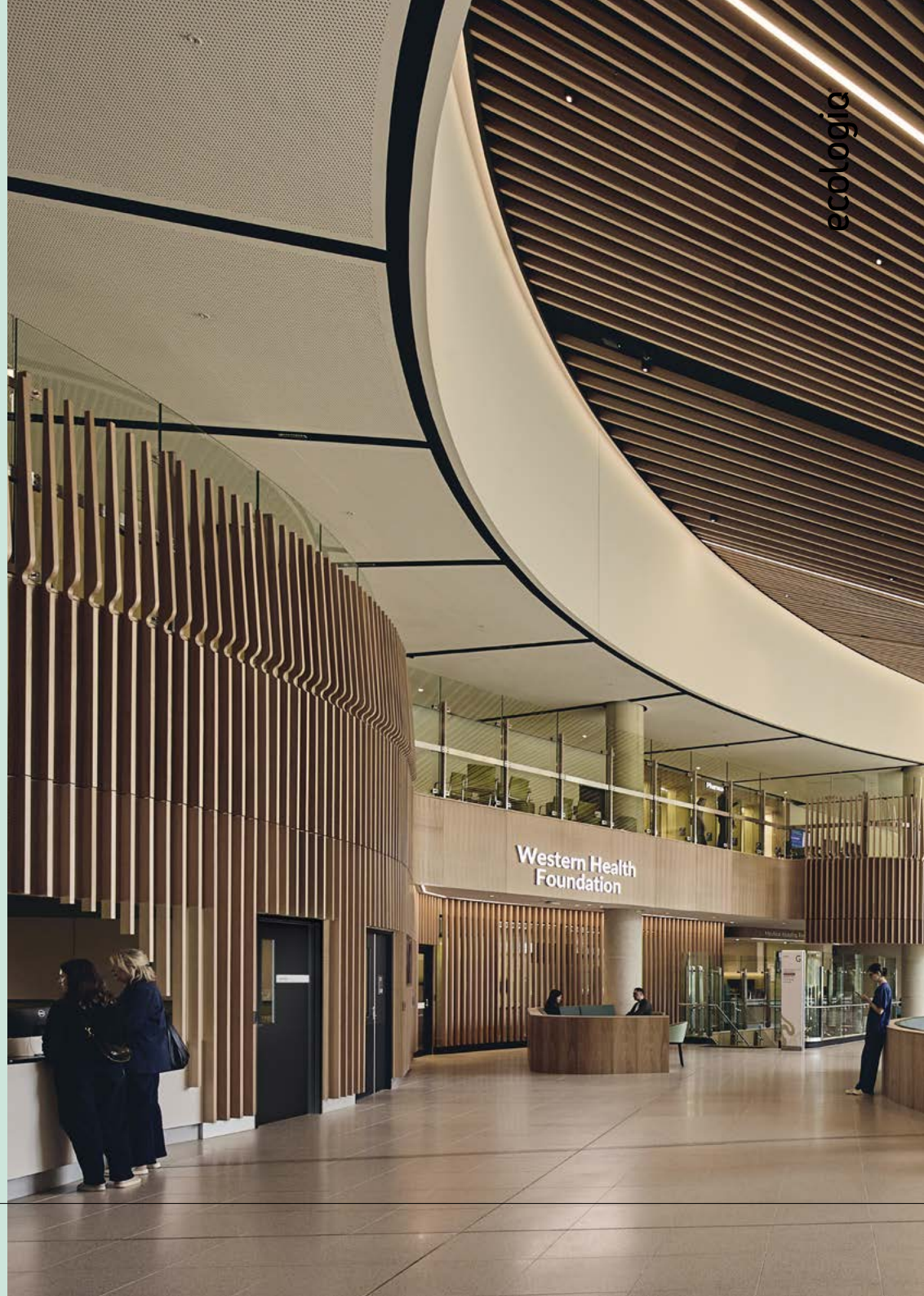


Table 4: Recycled content opportunities in fittings, furniture and equipment

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Railings and balustrades	Aluminium sheet	Aluminium	Opportunity	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
	Steel sheet	Steel	Opportunity	■	Vic made product made from Vic feedstock, but is less than max opportunity %
Joinery panels/ board	Plastic composite board	Post-consumer composite plastic / paper packaging waste	Up to 100%	■	Product purchasable to the max % opportunity, however is imported from interstate
	Particleboard	Wood chips (post-consumer and post-industrial)	Up to 76%	■	Vic made product at the max % opportunity & made from Vic feedstock
Joinery/furniture	Solid timber	Reused timber	Direct reuse	■	Vic made product at the max % opportunity & made from Vic feedstock
Benchtops	Aluminium	Aluminium	Highest available	■	Theoretically possible, but no known product generally available
	Engineered stone	Glass	Up to 100%	■	Vic made product made from Vic feedstock, but is less than max opportunity %
	Plastic composite board	Post-consumer composite plastic/ paper packaging waste	Up to 100%	■	Product purchasable to the max % opportunity, however is imported from interstate
Blinds	PET	Recycled PET (rPET)	Up to 100%	■	Product purchasable to the max % opportunity, however is imported
Toilet partitions	Plastic composite panels	Post-consumer composite plastic/ paper packaging waste	Up to 100%	■	Product purchasable to the max % opportunity, however is imported from interstate

Building services

Encompasses mechanical, electrical, and plumbing systems including Heating, Ventilation, and Air Conditioning (HVAC), electrical distribution, lighting, fire alarms, data systems, water supply, drainage, sanitary fittings, lifts, escalators, and specialist systems like building management and security.

Table 5: Recycled content opportunities in building services

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Ductwork	Various	Polyvinyl chloride (PVC) or recycled plastic bottles (PET)	Up to 100%		Product purchasable to the max % opportunity, however is imported from overseas
		Steel	17-26%		Vic made product at the max % opportunity & made from Vic feedstock
		Aluminium	Highest available		Theoretically possible, but no known product generally available
Pipework	Various	Plastic (recycled HDPE)	Highest available		Vic made product at the max % opportunity & made from Vic feedstock
		Copper	Up to 40-50%		Product purchasable to the max % opportunity, however is imported from interstate
Plumbing fixtures such as sinks, taps, WCs	Various	Polypropylene (PP)	Up to 100%		Product purchasable to the max % opportunity, however is imported
		Steel	Up to 80%		Product purchasable to the max % opportunity, however is imported
		Ceramic	Up to 100%		Product purchasable to the max % opportunity, however is imported
Rainwater tank	Polypropylene (PP)	Polypropylene (PP)	Up to 100%		Product purchasable to the max % opportunity, however is imported from interstate
Fire tank	Stainless steel	Steel	Up to 70%		Product purchasable to the max % opportunity, however is imported from overseas
Electrical cabling	Polyvinyl chloride (PVC)	Polyvinyl chloride (PVC)	Up to 50%		Product purchasable to the max % opportunity, however is imported
Electrical conduits	Polyvinyl chloride (PVC)	Polyvinyl chloride (PVC) component in a multi-layer pipe	Up to 75%		Vic made product at the max % opportunity & made from Vic feedstock
	Aluminium	Aluminium	Highest available		Product exists internationally at the max % opportunity but not currently purchasable locally

External works and landscaping

Covers site-related construction outside the building footprint, including hard landscaping (paving, roads, car parks), soft landscaping (planting, turfing, irrigation), boundary treatments (fencing, walls, gates), site drainage, external lighting, signage, and external furniture.

Please refer to the Road & Rail Reference Guides for more detail on standards – links below.

Recycled Materials in Ancillary Infrastructure

Recycled Materials in Road Infrastructure

Recycled Materials in Rail Infrastructure

To note: there is opportunity for higher % recycled content where assets do not need to comply with Department of Transport and Planning (DTP) standards. Local council may allow higher % or use performance based specifications.

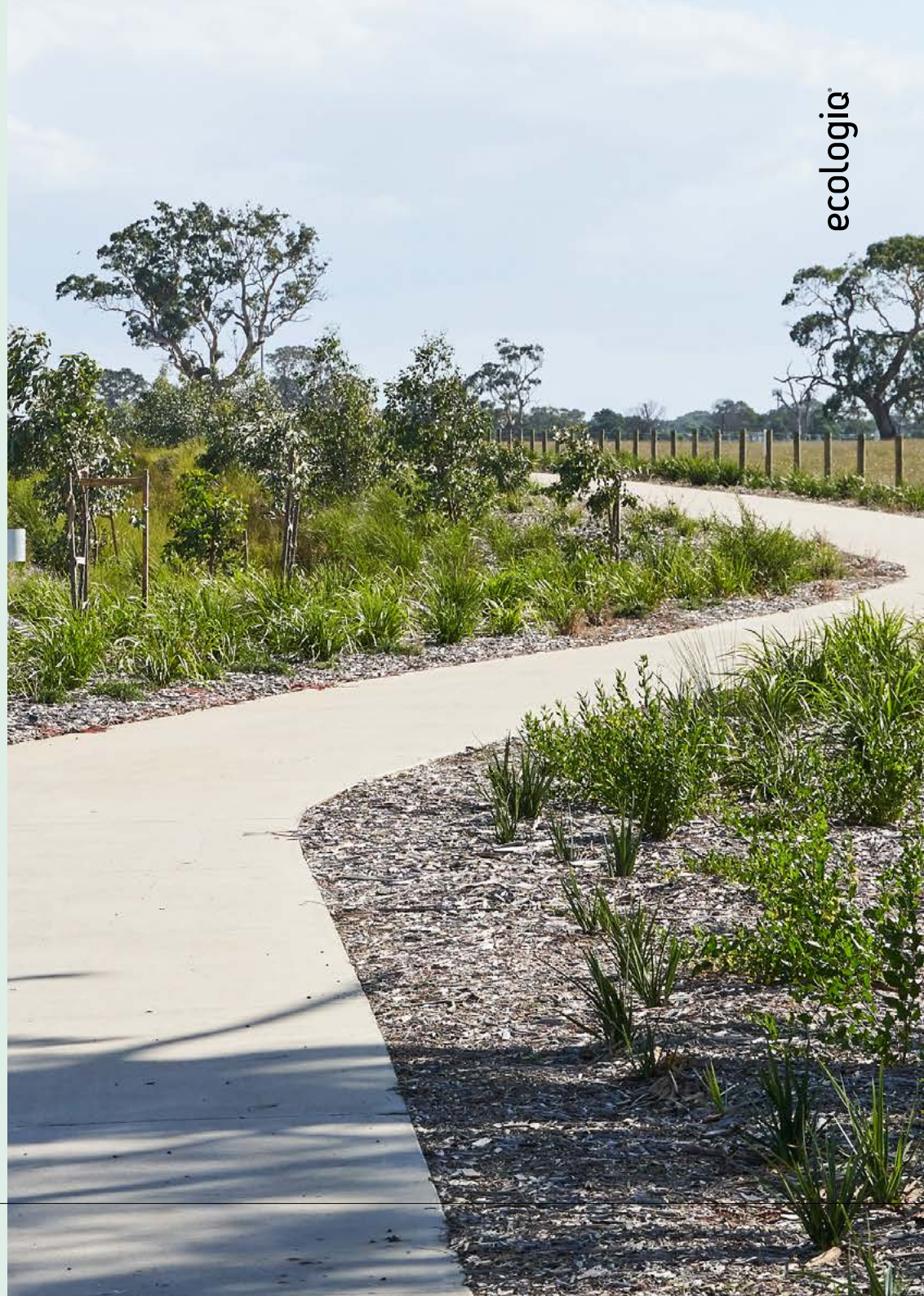


Table 6: Recycled content opportunities in external works and landscaping

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
External works – Kerbs, footpaths, paving, roads	Asphalt	Plastics (i.e. polypropylene and polyethylene)	May be permitted	■	Vic made product at the max % opportunity & made from Vic feedstock
		Recycled Asphalt Pavement	Up to 40%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Glass	Up to 5%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Rubber	May be permitted	■	Vic made product at the max % opportunity & made from Vic feedstock
	Aggregate / crushed rock	Glass	Up to 50%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Crushed concrete	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Crushed rock	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Recycled Asphalt Pavement	Up to 50%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Crushed brick	Up to 50%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Slag aggregate	Up to 50%	■	Vic made product at the max % opportunity & made from Vic feedstock
External works – concrete-based	Concrete	Crumb rubber	May be permitted	■	Vic made product at the max % opportunity & made from Vic feedstock
		Recycled aggregates and clinker	100% of cement and aggregate	■	Theoretically possible, but no known product generally available
		Plastics (i.e. polypropylene and polyethylene)	May be permitted	■	Vic made product at the max % opportunity & made from Vic feedstock
		Glass	Up to 60% of fine aggregate by weight	■	Vic made product made from vic feedstock, but is less than max opportunity %
		Crushed concrete	Up to 40% of coarse aggregate by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Fly ash	Up to 35% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Slag	Up to 65% replacement of cement by weight	■	Vic made product at the max % opportunity, however, uses imported feedstock
		Triple blend – fly ash and slag	Up to 80% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Silica fume	3-10% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Calcined Clay	Up to 30% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Reinforcement bar, mesh and fibres	Steel	Glass fibre reinforced polymer (GFRP)	Alternative to steel		Vic made product at the max % opportunity & made from Vic feedstock
		Macro synthetic fibre	Alternative to steel		Vic made product at the max % opportunity & made from Vic feedstock
		Steel	Highest available in the local market*		Vic made product at the max % opportunity & made from Vic feedstock
Decking	Composite	Timber fibres (reclaimed), Recycled HDPE	90% of timber fibre content and HDPE content		Product purchasable to the max % opportunity, however is imported
		Recycled plastic	85%		Vic made product at the max % opportunity & made from Vic feedstock
	Solid timber	Timber	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
Topsoil for landscaping	Topsoil	Reused or imported recycled soil	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
	Mulch	Mulch	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
Pavers	Varied	Glass	Up to 40%		Vic made product made from Vic feedstock, but is less than max opportunity %
Outdoor furniture	Varied	Mixed plastics including HDPE, PP, and LDPE	Up to 85%		Vic made product at the max % opportunity & made from Vic feedstock
		Timber	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock
		Steel	Highest available in the local market*		Vic made product at the max % opportunity & made from Vic feedstock
		Aluminium	Up to 100% of aluminium castings		Vic made product at the max % opportunity & made from Vic feedstock
Bike racks	Steel	Steel	Up to 100%		Vic made product made from Vic feedstock, but is less than max opportunity %
Sewer and stormwater pipes	HDPE pipes	Recycled HDPE	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
	Reinforced concrete pipes (RCPs)	Crushed concrete	Up to 20% replacement of aggregates by weight		Product purchasable, however is imported & is less than the max opportunity %
		Triple blend fly ash and slag	Up to 25% replacement of cement by weight		Vic made product at the max % opportunity, however uses imported feedstock
		Aggregate	Up to 20% replacement of aggregates by weight		Product purchasable, however is imported & is less than the max opportunity %
Pipework bedding and drainage layers	Aggregate	Glass, crushed concrete, and crushed brick (masonry)	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Lighting pole	Varied	Polypropylene (PP)	100% of the plastic core component		Vic made product at the max % opportunity & made from Vic feedstock
		Steel	Highest available in the local market*		Vic made product made from Vic feedstock, but is less than max opportunity %
Fencing	Plastic railing	Mixed plastics including HDPE, PP, and LDPE	Up to 85%		Vic made product at the max % opportunity & made from Vic feedstock
Soft fall surfaces	Rubber	Crumb rubber (from tyres)	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
Permeable paving	Rubber and virgin rock	Crumb rubber (from tyres)	Up to 60% rubber content		Vic made product at the max % opportunity & made from Vic feedstock
Walls and landscape features	Varied	Cut concrete	Direct reuse		Vic made product at the max % opportunity & made from Vic feedstock

**To note: where 'Highest available in local market' is stated for steel, this is to preference locally made products that may have slightly less % recycled content than an interstate product. % recycled content changes depending on manufacturer and scrap availability.*

Playgrounds, Play Areas and Sports Facilities

Materials relevant to playgrounds, play areas and sports facilities, including court flooring and stadium seating.

Table 7: Recycled content opportunities in playgrounds and play areas

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Playground equipment	High-density polyethylene (HDPE)	High-density polyethylene (HDPE)	Up to 100%		Product purchasable to the max % opportunity, however is imported from interstate
	Timber	Timber	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
	Aluminium	Aluminium	Up to 80%		Product purchasable to the max % opportunity, however is imported
Play surface	Rubber	Recycled rubber from stripped tyres	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
	Polypropylene (PP) / Plastic	Recycled plastic	Up to 85%		Product purchasable to the max % opportunity, however is imported

Table 8: Recycled content opportunities in sports facilities

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Court flooring surface	Polypropylene (PP)	Polypropylene (PP)	Up to 100%		Product purchasable to the max % opportunity, however is imported
	Rubber	Recycled rubber from stripped tyres	Up to 90%		Vic made product at the max % opportunity & made from Vic feedstock
Court flooring underlay	Rubber	Recycled rubber from stripped tyres	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock
Stadium seating	Polypropylene (PP)	Polypropylene (PP)	Up to 100%		Vic made product at the max % opportunity & made from Vic feedstock

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Key opportunities have been identified in this section based on initiatives that achieve one of the following:

- High volume of potential recycled content due to the high quantity of the material used in a typical project, such as concrete and steel
- High value recycled content related to priority waste streams. In particular, opportunities for recycling and reuse of plastic and rubber have been highlighted, representing two of the highest priority waste streams for Victoria.

Concrete

Concrete generally represents the most significant material quantity by mass on a typical building project and therefore is a key material to be considered in optimising recycled content use. Two key opportunities exist for optimising recycled content in concrete:

Supplementary Cementitious Materials (SCMs):

Use of Supplementary Cementitious Materials (SCMs) such as fly ash and slag to replace Portland cement in both in situ and precast concrete. Based on current industry knowledge and experience, 65% slag and/or 30% fly ash are considered practical limits to double blends, with 80% total SCM cement replacement presenting a practical limit using a triple blend. With these limits there are potential setting time impacts as well as impacts to workability and other engineering properties.

Higher SCM replacement is more achievable for some concrete applications than others. Foundations present a particular opportunity for high SCM mixes, while post-tensioned slabs present a more constrained opportunity for high SCM mixes (e.g. beyond 50%).

Concrete used in Australian buildings must comply with the relevant Australian Standards. Concrete classes beyond normal and special class, such as alkali-activated concrete and geopolymer concrete, must demonstrate compliance through a project-specific performance specification. This is generally expected to apply once SCM replacement exceeds about 50%. There is no Australian Standard currently applicable to these types, however Technical Specification TS199 provides advice and testing method guidance.

Recycled aggregates

Concrete recycled aggregate opportunities include the use of glass and crushed concrete to replace virgin aggregates such as crushed rock and sand in concrete mixes.

Emerging opportunities

Recycled plastic aggregates, biochar and calcined clay are examples of emerging opportunities in concrete, which may be trialled or adopted by projects in suitable applications.

Steel

Steel is typically the second most significant material quantity by mass after concrete in new building construction. Steel is used for reinforcement in concrete, structural elements, and other building elements such as roofs, cladding, and building services. Therefore, procurement of recycled steel for key steel uses can have significant impacts on total recycled content use in buildings.

The metallurgical properties of steel mean it can be recycled continually, with practically no degradation in performance for most applications. Steel can be produced either using a blast furnace process or an electric arc furnace process.

Electric arc furnace steel production uses scrap steel to create new steel with high recycled content, and therefore steel produced via electric arc furnace steelmaking facilities presents an opportunity for high post-consumer recycled content – currently this is mostly reinforcing steel manufacturers. Structural steel manufacturers currently manufacture using blast furnaces (not electric arc furnaces) – which do not allow for high recycled steel content.

Steel produced through the blast furnace process is typically limited to 0-25% recycled steel content, whereas the electric arc furnace process is able to use a higher recycled input of 85% or higher.

Recycled structural steel opportunities are limited in the Australian market due to the majority of structural steel products being produced from blast furnace facilities. Reinforcement steel containing high recycled content is readily available on the local market via electric arc furnace manufacturing facilities.

Wall finishes

Wall protection sheeting is used extensively in healthcare facilities to provide a covering that protects walls against impacts in high-traffic areas such as corridors, patient rooms or emergency departments.

Wall protection products can incorporate recycled plastic, rubber and aluminium.

In addition, plasterboard used for internal wall lining could contain recycled gypsum and/or paper, and wall tiles are available with recycled content. Acoustic wall panels can also be manufactured with recycled content including plastic, paper and cotton.

The wall finishing must comply with relevant performance requirements, e.g. acoustic and fire rating.

Ceiling finishes

There is opportunity to utilise ceiling tiles manufactured with recycled plastic and cardboard in building projects.

Plasterboard and acoustic panels used in ceiling applications can also contain recycled content similar to wall finishes (refer 'Wall finishes').

Floor finishes

Floor finishes are specialised floor surface treatments designed to support floor function including hygiene, durability, comfort, and safety.

There is opportunity for various floor finishes to be made with recycled content including the following:

Plastic

Recycled content in tiles, vinyl, linoleum, carpet, underlay, and laminate flooring.

Rubber

Recycled rubber underlay.

Sports facilities

Indoor court flooring represents an opportunity to utilise recycled materials such as rubber and plastic in sports facilities.

Sports facility seating made from recycled plastic is another opportunity for priority waste stream recycled content use for sports facilities.

Insulation

Insulation is a critical building component for energy efficiency, acoustic control and maintaining temperature control. A number of opportunities exist for optimising recycled content in buildings through insulation specification.

Recycled content in insulation exceeding 80% is readily available for a range of insulation types, including:

- Mineral wool insulation batts containing recycled basalt and slag
- Fibreglass insulation batts containing recycled glass
- Rigid board insulation containing recycled polystyrene
- Cellulose insulation (blow in) containing recycled cellulose from waste paper and cardboard.

All insulation products must comply with relevant performance requirements, including combustibility and fire safety standards. High recycled content insulation should be specified only where it meets applicable building regulations and is suitable for its intended use.

Joinery

Joinery includes built in cabinetry, shelves, benches and various built-in furniture items. There is opportunity for joinery products to include processed recycled timber, reused timber, and/or recycled plastic.

Benchtops and tabletops

There are a number of suppliers in Australia able to create 100% recycled products which could be used in place of traditional materials (timber laminates).

Playgrounds

Playground play surfaces made from recycled rubber is a readily available recycled content opportunity with the added benefit of rubber dampening impacts from falls.

Play equipment containing recycled plastic presents another recycled content opportunity for playgrounds.

Outdoor furniture and decks

Outdoor furniture such as fixed tables, benches, outdoor bins and bike racks and external decking are typically made to be weather resistant, is made from materials that support functionality and durability. There are several options to utilise high recycled content in outdoor furniture, including recycled plastic, recycled aluminium, and reused or reprocessed timber.

Plastic

Outdoor furniture for external areas such as fixed tables, benches and decking are locally available with high amounts of recycled plastic and are fully recyclable at their end of life.

Aluminium

Outdoor furniture products utilising a 100% recycled aluminium frame are locally available. This includes litter receptacles, bike racks, picnic settings, seats and drinking fountains.

Timber

Outdoor decking using reclaimed timber fibres combined with recycled HDPE is available in Australia, providing durable and weather resistant solutions for external areas. Solid timber reuse is also suitable for decking and outdoor furniture where material condition allows, supporting material longevity and reducing the use of virgin resources.

External civil works

External civil works can include pavements for carparks, paths and access, as well as stormwater drainage systems, retaining walls and landscaping. Numerous recycled content opportunities exist for civil works, including:

- Recycled plastic drainage pipes
- SCMs and recycled aggregates in reinforced concrete pipes
- Recycled plastic geosynthetics
- Reclaimed Asphalt Pavement (RAP) in asphalt
- Recycled aggregate (crushed concrete, crushed glass, recycled crushed rock, RAP) for bedding and drainage layers, road base, and backfill
- Recycled plastic macro synthetic fibre reinforcement in concrete pedestrian paths, replacing steel mesh
- Recycled organics in landscaping applications

Further information on the opportunities and practical limits for the use of recycled content in civil works can be found in ecologiQ's Reference Guide for Recycled Materials in Road Infrastructure and the Reference Guide for Recycled Materials in Ancillary Infrastructure.

4. Water Infrastructure

The Melbourne Retail Water Association (MRWA) comprises three main water services corporations in metropolitan Melbourne:

Yarra Valley Water, South East Water, and Greater Western Water. MRWA editions of the WSA Codes have been adopted by the MRWA agencies. These codes are based on Water Services Association of Australia (WSAA) standards, with specific requirements tailored for the Melbourne metropolitan area. These codes are also used by the other water authorities across Victoria, but with supplements.

A list of the other regional and rural water corporations across Victoria is as follows:

- Barwon Water
- Central Highlands Water
- Coliban Water
- East Gippsland Water
- Gippsland Water
- Goulburn Valley Water
- Goulburn Murray Water
- Grampians Wimmera Mallee Water
- Lower Murray Water
- North East Water
- South Gippsland Water
- Southern Rural Water
- Wannon Water
- Westernport Water

In addition to the above agencies, Melbourne Water is the statutory authority in charge of managing and protecting Melbourne's major water resources including water supply. Melbourne Water utilise a range of design guidelines based on WSAA Codes.

4.2 Water Infrastructure – Codes & Standards

This section outlines codes and standards that represent the primary references for technical provisions, requirements and specifications relevant to water infrastructure projects.

Water Services Association of Australia (WSAA)

WSAA is the peak body representing the water sector. Melbourne Retail Water Agencies (MRWA) editions of the following WSA Codes are adopted in Victoria:

- **MRWA WSAA Water Code:** Water Supply Code of Australia (WSA 03-2011): provides standards and guidelines for the planning, design, construction, testing, and commissioning of drinking and non-drinking water supply systems in Australia.
- **MRWA WSAA Sewerage Code:** Gravity Sewerage Code of Australia (WSA 02-2014): addresses planning and design and construction, testing and commissioning of trunk, branch, reticulation and property connection sewers up to DN1200.
- **WSAA Pressure Sewer Code:** The Pressure Sewerage Code of Australia (WSA 07-2007) covers the planning, design, products and materials of reticulation networks up to and including DN 300.
- **WSAA Sewerage Pumping Station Code:** The Sewerage Pumping Station Code (WSA 04-2022) covers the planning, design, and construction of pumping stations and pressure mains up to and including 200 litres per second and DN 375, respectively.
- **WSAA Polyethylene Pipe Line Code:** The Polyethylene (PE) Pipe Line Code (WSA 01-2004) provides guidelines in the use of PE pipeline systems and covers, pressure pipelines, non-pressure sewerage pipelines, vacuum sewer systems using polyethylene and pipe relining using polyethylene.

The above codes are available for purchase at: www.mrwa.com.au/standards

Australian Standards (AS)

A number of Australian Standards are referenced in the WSAA codes, including the following:

- AS 1579-2001 Standard - Arc-welded steel pipes and fittings for water and wastewater.
- AS 1281-2001 Standard - Cement mortar lining of steel pipes and fittings
- AS 4321:2025 Standard - Fusion-bonded medium-density polyethylene coating and lining for pipes and fittings
- AS 3855 - Suitability of plumbing and water distribution systems products for contact with potable water
- AS/NZS 4020 - Products for use in contact with drinking water
- AS/NZS 1477 - PVC pipes and fittings for pressure applications
- AS/NZS 4158 - Thermal bonded polymeric coatings on valves and fittings for water industry purposes.
- AS 4139 - Fibre reinforced concrete pipes and fittings.

International Standards (ISO)

Key ISO standards referenced in the WSAA codes include:

- ISO 13953 Polyethylene (PE) pipes and fittings – Determination of the tensile strength and failure mode of test pieces from a butt-fused joint
- ISO 13954 Plastics pipes and fittings – Peel decohesion test for polyethylene (PE) electrofusion assemblies of nominal outside diameter greater than or equal to 90mm
- ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories
- ISO 21751 Plastics pipes and fittings – Decohesion test of electrofusion assemblies – Strip-bend test
- ISO 7005-1 Metallic flanges – Part 1 – Steel flanges
- ISO 16132 Ductile iron pipes and fittings – Seal coats for cement mortar linings.

4.3 Water Infrastructure – Recycled Material Opportunities

This section provides information about recycled material potential within water infrastructure applications.

For descriptions of various material applications as referenced in this guide, refer to *Table B2: Descriptions of materials and their applications – Water Infrastructure* in Appendix B.

The recycled content opportunities tables in this section outline the current practical limits of recycled content for relevant materials by application, and notes applicable standards and practical limits that apply in relation to recycled content.

Note that this guide generally relates to current practical limits for recycled content, and that not all applications shown will have locally manufactured recycled products available in the current market. Local suppliers, manufacturers and waste processors can use this guide to determine potential areas of development and product demand.

Table 9: Recycled content opportunities in water infrastructure

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Pipes - Wastewater Gravity Wastewater Pressure Water	Steel Cement Lined (SCL)	Steel pipe	18%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Cement lining SCMs (triple blend - fly ash and slag) (silica fume, natural pozzolans)	Up to 60%	■	Theoretically possible, but no known product generally available
	Ductile Iron Cement Lined (DICL)	Iron pipe	Up to 90% of iron content	■	Vic made product made from Vic feedstock, but is less than max opportunity %
		Cement lining SCMs (triple blend - fly ash and slag) (silica fume, natural pozzolans)	Up to 60%	■	Theoretically possible, but no known product generally available
Pipe – Stormwater	HDPE pipes	Recycled HDPE	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock
	Reinforced concrete pipes (RCPs)	Crushed concrete	Up to 20% replacement of aggregates by weight	■	Product purchasable, however is imported & is less than the max opportunity %
		Triple blend fly ash and slag	Up to 25% replacement of cement by weight	■	Vic made product made from Vic feedstock, but is less than max opportunity %
		Aggregate	Up to 20% replacement of aggregates by weight	■	Product purchasable, however is imported & is less than the max opportunity %
Bedding aggregates (sand and aggregates blend)	Sand	Glass sand	Up to 100% of sand content	■	Vic made product at the max % opportunity & made from Vic feedstock
	Sand	Excavated Sand	Direct reuse of sand content	■	Vic made product at the max % opportunity & made from Vic feedstock
	Brick	Crushed brick	Up to 100% of aggregate content	■	Vic made product at the max % opportunity & made from Vic feedstock
Engineered fill	Densely graded base	Crushed concrete	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Reclaimed asphalt pavement (RAP)	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock

4.4 Water Infrastructure – Key Opportunities

Key opportunities have been identified in this section based on initiatives that achieve one of the following:

- High volume of potential recycled content due to the high quantity of the material used in a typical project, such as concrete and steel
- High value recycled content related to priority waste streams.

Pipes – non-pressure

For non-pressure pipes, there are opportunities to target recycled content in both wastewater gravity applications and stormwater applications as summarised below:

Wastewater gravity:

- Ductile iron cement lined (DICL) pipe with recycled iron and the use of supplementary cementitious materials (SCMs) in the lining

Stormwater:

- Reinforced concrete pipe containing supplementary cementitious materials (SCMs) and recycled aggregate
- Recycled plastic pipework, with locally made 100% recycled plastic pipe for stormwater applications available in Victoria.

Pipes – pressure

Relevant Australian Standards for plastic pipes in pressure applications stipulate that recycled/rework material can only be used where it is of the same composition and generated from the manufacturer's own production of project made to the Standard.

The standards also state that "When rework material is added to a production run, the manufacturer shall treat this run as a new batch." Therefore, for pressure applications, recycled content in both uPVC and PE pipes is limited to pre-consumer waste from the manufacturer's own production, and the run must be treated as a new batch.

Due to the limited potential for recycled content in uPVC and PE pipes under the current Standards, steel cement lined (SCL) and ductile iron cement lined (DICL) pipes are the only materials presenting recycled content opportunities in pressure pipework. A review of broader environmental impacts and performance outcomes, such as life cycle carbon and durability, should be considered when selecting pressure pipe materials.

Aggregates

Aggregates present a key opportunity for recycled content on water infrastructure projects, with bedding sand and densely graded base presenting significant material quantities for typical water infrastructure projects. The following opportunities are identified for each:

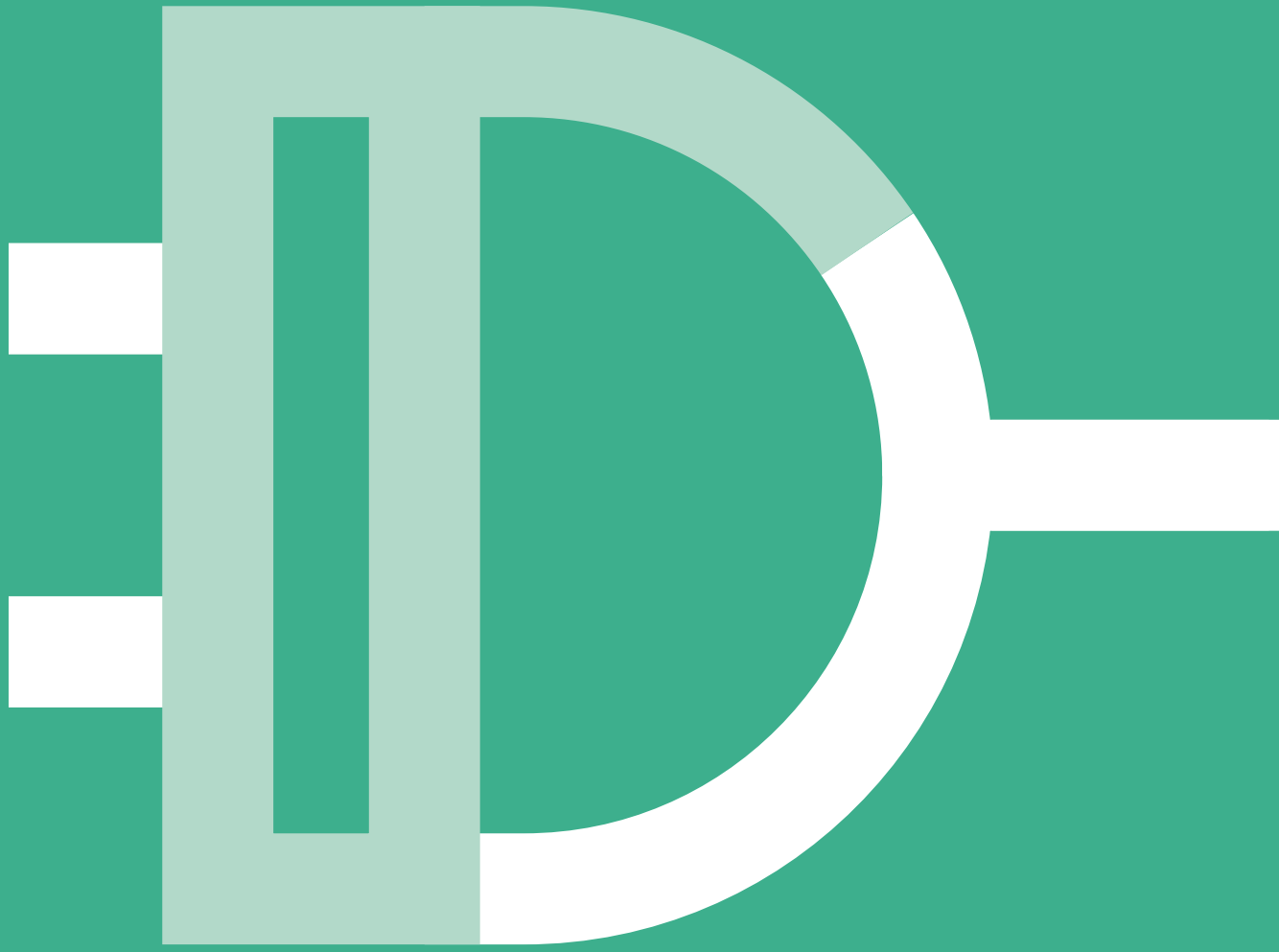
Bedding aggregates:

- Glass sand
- Recycled sand
- Crushed brick

Densely graded base:

- Crushed concrete
- Reclaimed asphalt pavement (RAP).

5. Electrical Infrastructure



5.1 Electrical Infrastructure – Authorities

The below authorities are central to the delivery and regulation of electrical infrastructure projects in Victoria.

Market bodies

There are three major market bodies that oversee national electricity and gas markets in Australia:

The Australian Energy Market Operator (AEMO)

For managing Australia's electricity and gas systems and markets (refer below for further information).

The Australian Energy Market Commission (AEMC)

Develops the rules by which the markets must operate.

The Australian Energy Regulator (AER)

Monitors performance and compliance with the rules.

Australian Energy Market Operator (AEMO)

AEMO leads the design of Australia's future energy system and is currently responsible for the planning of the Victorian transmission network through AEMO Victorian Planning (AVP).

The Victoria Government is currently progressing reforms to change the way transmission is planned and developed in Victoria, through the Victorian Transmission Investment Framework (VTIF). The proposed VTIF reforms will transfer the responsibility for planning Victoria's declared shared network, and all of AEMO's associated declared network functions, to VicGrid (see right). This will end AEMO's Victorian transmission network service provider role. Legislation to enable this transfer is expected to come into effect in late-2025.

VicGrid

VicGrid is working with AEMO to deliver major high voltage (HV) transmission projects and there are additional VicGrid and AEMO standards and specifications that apply in relation to these projects.

AusNet Services

AusNet Services mandates high voltage substation and transmission line standards for Victoria. AusNet Services maintain design manuals, construction standards, and specifications for high voltage substations and transmission line projects. These manuals, standards and specifications generally reference Australian Standards, National Electricity Rules and International Electrotechnical Commission (IEC) Standards (refer following section).

5.2 Electrical Infrastructure – Codes & Standards

The below codes and standards represent the primary references for technical provisions, requirements and specifications relevant to new electrical infrastructure projects.

Australian Standards (AS)

Key Australian Standards applicable to electricity transmission projects include the following:

- AS 2067 – Substations and high voltage installations exceeding 1 kV AC
- AS/NZS 7000 – Overhead line design – Detailed procedures
- AS/NZS 4853 – Electrical hazards on metallic pipelines
- AS/NZS 3010 – Electrical installations – Generating sets
- AS/NZS 3000 – Wiring Rules
- AS 61000 series – Electromagnetic Compatibility
- AS/NZS ISO 9001 – Quality management systems
- AS 1768 – Lightning protection
- AS 1170 – Structural design actions
- AS/NZS 4671 – Steel reinforcing materials
- AS/NZS 2312 – Corrosion protection of steel
- AS 3996 – Access Covers & Grates
- AS/NZS 3012 – Electrical installations – Construction and demolition sites
- AS/NZS 2053 – Electrical conduits – Ledes
- AS 1970 – Flammable liquids storage & handling
- AS/NZS 61000 – Electromagnetic Compatibility

International Standards

Key IEC Standards and IEEE Standards applicable to electricity transmission projects include the following:

- IEC 60287 – Electric cables – Calculation of current rating
- IEC 60840 – Power cables with rated voltages above 30 kV
- IEC 60071 – Insulation coordination
- IEC 60076 – Power transformers
- IEC 62271 – High voltage switchgear and control gear
- IEC 60865 – Short circuit currents
- IEEE 80 – Guide for safety in AC substation grounding
- IEEE C37 series – Switchgear and protection devices
- IEEE 3002 – Recommended practices for the design of reliable industrial and commercial Power systems

5.3 Electrical Infrastructure – Recycled Material Opportunities

This section provides information about recycled material potential within electrical infrastructure applications.

For descriptions of various material applications as referenced in this guide, refer to *Table B3: Descriptions of materials and their applications – Electrical Infrastructure* in Appendix B.

The recycled content opportunities tables in this section outline the current practical limits of recycled content for relevant materials by application, and notes applicable standards and practical limits that apply in relation to recycled content.

Note that this guide generally relates to current practical limits for recycled content, and that not all applications shown will have locally manufactured recycled products available in the current market. Local suppliers, manufacturers and waste processors can use this guide to determine potential areas of development and product demand.

Table 10: Recycled content opportunities in electrical infrastructure

- Vic made product available at the max % opportunity & made from Vic feedstock
- Vic made or Vic feedstock product available for purchase, refer to individual notes
- Non-Vic product available for purchase, refer to individual notes
- Product not available locally, refer to individual notes

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Electrical cable conductor	Copper	Copper	Up to 100%		Product purchasable, however is imported & is less than the max opportunity %
	Aluminium	Aluminium	Up to 10%		Product purchasable to the max % opportunity, however is imported
Cable tray/ladder	Steel	Steel	Direct reuse, or up to 100%		Theoretically possible, but no known product generally available
	Polyvinyl chloride (PVC)	Polyvinyl chloride (PVC)	Direct reuse, or up to 100%		Product purchasable to the max % opportunity, however is imported
	Aluminium	Aluminium	Direct reuse, or highest available		Theoretically possible, but no known product generally available
Communications rack	Steel	Steel	Highest available		Theoretically possible, but no known product generally available
Conduit	Polyvinyl chloride (PVC)	Polyvinyl chloride (PVC)	Up to 70%		Vic made product at the max % opportunity & made from Vic feedstock
	Cross-linked polyethylene (XLPE)	Cross-linked polyethylene (XLPE)	Up to 100%		Product purchasable to the max % opportunity, however is imported
	Steel	Steel	Up to 100%		Product purchasable, however is imported & is less than the max opportunity %
	Aluminium	Aluminium	Up to 100%		Product exists internationally at the max % opportunity, but not currently purchasable locally
Generator fuel tank	Steel	Steel	Highest available		Theoretically possible, but no known product generally available
	Aluminium	Steel	Highest available		Theoretically possible, but no known product generally available
Cable and earthing pits - concrete	Concrete	Fly ash	Up to 30%		Vic made product uses imported feedstock & is less than max opportunity %
		Slag	Up to 65%		Vic made product at the max % opportunity, however, uses imported feedstock
		Triple blend – Fly ash and slag	Up to 80%		Vic made product uses imported feedstock & is less than max opportunity %
		Crushed concrete	Up to 40%		Vic made product at the max % opportunity & made from Vic feedstock
		Glass	Up to 60%		Vic made product made from Vic feedstock, but is less than max opportunity %
	Plastic	Plastic	Up to 100%		Vic made product at the max % opportunity, however uses imported feedstock

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Earth electrode	Copper	Copper	Highest available	■	Theoretically possible, but no known product generally available
	Copper-clad steel	Copper	Highest available	■	Theoretically possible, but no known product generally available
	Steel	Steel	Highest available	■	Theoretically possible, but no known product generally available
Asphalt	Asphalt	Plastics (i.e. polypropylene and polyethylene)	May be permitted	■	Vic made product at the max % opportunity & made from Vic feedstock
		Recycled Asphalt Pavement	Up to 40%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Glass	Up to 5%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Rubber	May be permitted	■	Vic made product at the max % opportunity & made from Vic feedstock
Fuel tank	Steel	Steel	Highest available	■	Theoretically possible, but no known product generally available
Security fencing	Security fencing	Steel	Up to 100%	■	Product purchasable, however is imported & is less than the max opportunity %
		Timber	Up to 100%	■	Theoretically possible, but no known product generally available
Solar PV	Solar PV	Glass	Up to 100%	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
		Plastic	Up to 100%	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
		Aluminium	Up to 100%	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
		Silicon	Up to 100%	■	Product exists internationally at the max % opportunity, but not currently purchasable locally
Wind turbines	Steel frame	Steel	Highest available	■	Theoretically possible, but no known product generally available
Control cubicle	Steel	Steel	Highest available	■	Theoretically possible, but no known product generally available
Lightning protection	Lightning protection rod	Steel	Highest available	■	Theoretically possible, but no known product generally available
	Lighting protection tower	Steel	Highest available	■	Theoretically possible, but no known product generally available

Product or component	Material	Recycled content material	Australian recycled content opportunity (2025)	Availability	Availability Note (2025)
Poles	Poles	Steel	Highest available	■	Theoretically possible, but no known product generally available
Switchroom slab	Concrete	Recycled aggregates and clinker	100% of cement and aggregate	■	Theoretically possible, but no known product generally available
		Glass	Up to 20% of fine aggregate by weight	■	Vic made product made from Vic feedstock, but is less than max opportunity %
		Crushed concrete	Up to 20% of coarse aggregate by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Fly ash	Up to 35% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Slag	Up to 65% replacement of cement by weight	■	Vic made product at the max % opportunity, however, uses imported feedstock
		Triple blend – fly ash and slag	Up to 80% replacement of cement by weight	■	Vic made product uses imported feedstock & is less than max opportunity %
		Silica fume	3-10% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
		Calcined clay	Up to 30% replacement of cement by weight	■	Vic made product at the max % opportunity & made from Vic feedstock
Steel masts	Steel	Steel	Highest available	■	Vic made product made from Vic feedstock, but is less than max opportunity %
Steel gantries	Steel	Steel	Highest available	■	Vic made product made from Vic feedstock, but is less than max opportunity %
Busbars	Busbars	Aluminium	Highest available	■	Theoretically possible, but no known product generally available
Bedding sand	Sand	Sand (recycled)	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock
		Glass	Up to 100%	■	Vic made product at the max % opportunity & made from Vic feedstock

5.4 Electrical Infrastructure – Key Opportunities

Key opportunities have been identified in this section based on initiatives that achieve one of the following:

- High volume of potential recycled content due to the high quantity of the material used in a typical project, such as concrete and steel
- High value recycled content related to priority waste streams, including plastic and glass.

Steel

Steel is used for a number of electrical infrastructure components including transmission poles, cable management, building structures, lightning protection, and fencing. Therefore, procurement of recycled steel for key steel uses can have significant impacts on total recycled content use in electrical infrastructure projects.

The metallurgical properties of steel mean it can be recycled continually, with practically no degradation in performance for most applications. Steel can be produced either using a blast furnace process or an electric arc furnace process.

Electric arc furnace steel production uses scrap steel to create new steel with high recycled content, and therefore steel produced via electric arc furnace steelmaking facilities presents an opportunity for high post-consumer recycled content – currently this is mostly reinforcing steel manufacturers. Structural steel manufacturers currently manufacture using blast furnaces (not electric arc furnaces) – which do not allow for high recycled steel content.

Steel produced through the blast furnace process is typically limited to 0-25% recycled steel content, whereas the electric arc furnace process is able to use a higher recycled input of 85% or higher.

Recycled structural steel opportunities are limited in the Australian market due to the majority of structural steel products being produced from blast furnace facilities. Steel products including beams, poles, and reinforcement containing high recycled content is readily available on the local market via electric arc furnace manufacturing facilities.

Cable management

Cable trays and cable ladders made from recycled plastic are available in the Victorian market, presenting an opportunity to increase recycled content on electrical infrastructure projects.

Bedding sand

Bedding sand presents an opportunity to utilise recycled content instead of virgin materials, with recycled glass sand being a readily available option.

Solar panels

Product trials have successfully been undertaken to create fully recycled PV panels where all recycled content comes from recycled PV panels at end of life.

This trial has proven that 100% recycled panels are possible, highlighting potential for largescale solar PV projects to help to drive this shift by working with industry to optimise recycled content in solar PV panels used on major electricity generation projects, noting that off-the-shelf availability of solar PV panels with advertised recycled content is currently very limited.

6. Acronyms

Name	Acronym
Australian Standards	AS
Australian/New Zealand Standards	AS/NZS
Country Fire Authority	CFA
Cross laminated timber	CLT
Community Safety Building Authority	CSBA
Development Victoria	DV
Ductile iron cement lined (pipes)	DICL
Environment Protection Authority	EPA
Expanded Polystyrene	EPS
Extruded Polystyrene	XPS
Glass fibre reinforced polymer	GFRP
High-Density Polyethylene	HDPE
Low-Density Polyethylene	LDPE
Melbourne Retail Water Association	MRWA
National Construction Code	NCC
Polyethylene	PE

Name	Acronym
Polypropylene	PP
Polyurethane	PU
Polyvinyl Chloride (Vinyl)	PVC
Reinforced Concrete Pipe	RCP
Supplementary Cementitious Material	SCM
Steel Cement Lined (pipes)	SCL
State Emergency Service	SES
Unplasticised Polyvinyl Chloride	uPVC
Victoria Building Authority	VBA
Victorian Health Building Authority	VHBA
Victoria (state)	Vic
Victorian School Building Authority	VSBA
Volatile Organic Compound	VOC
Whole-of-Life	WoL
Water Services Association of Australia	WSAA

7. Disclaimer

This guide is not intended to make any legal representations and does not commit the Victorian State Government to any future course of action. Readers should not rely on this guide when making construction, business or investment decisions. The Victorian State Government and its departments and agencies accept no responsibility for any use of this guide, including for any loss or detriment resulting from reliance on or application of this guide.

The information provided in this document is general guidance only. Personnel responsible for the delivery of projects shall undertake their own due diligence as to the adherence of materials and products against all applicable standards and specifications.

This guide is not a replacement for the relevant standards and specifications.

8. Change log

Version	Summary of updates
V1 Mar 2026	

Appendix A – Reference Documents

A1. Relevant Australian Standards

Concrete

AS 3600 Concrete Structures

AS 3582 Supplementary cementitious materials for use with Portland and blended cement

AS3972 Portland and blended cements

AS1012 Methods of testing concrete

AS 1379 Specification and supply of concrete

AS 2758 Aggregates and rock for engineering purposes

Pipes & Conduit

AS/NZS 1477 PVC pipes and fittings for pressure applications

AS/NZS 4441 Oriented PVC (PVC-O) pipes for pressure applications

AS/NZS 4765 Modified PVC (PVC-M) pipes for pressure applications

AS/NZS 4130 Polyethylene (PE) pipes for pressure applications

AS/NZS 4129 Fittings for Polyethylene (PE) pipes for pressure applications.

AS/NZS 1254 PVC-U pipes and fittings for stormwater and surface water applications

AS/NZS 1260 PVC-U pipes and fittings for drain, waste and vent applications

AS/NZS 61386.21 Conduit systems for cable management

AS/NZS 2053 PVC conduit for electrical installations

AS/NZS 5065 Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications

AS/NZS 4401 Plastics piping systems for soil and waste discharge (low and high temperature) inside buildings – Polyethylene (PE)

AS/NZS 2439 Perforated drainage pipe and associated fittings.

AS 4426 Thermal insulation of pipework ductwork and equipment

AS1273-1991 for uPVC pipes

AS4130-31 for PE pipes

AS1432 for copper pipes

AS2492 for PEX pipes

AS 3500.1-4 for water supply and sewer/stormwater

AS 4020 Testing of products in contact with drinking water

Timber

AS/NZS 1748 Timber Stress-graded Product requirements for mechanically stress-graded timber

AS 2082 Visually stress-graded hardwood for structural purposes

AS 2858 Timber softwood – visually stress-graded for structural purposes

AS 2878 Timbers classification into strength groups

AS 3519 Timber – Machine proof grading

Masonry Structures

AS 4455.1 Masonry units, pavers, flags and segmental retaining wall units, Part 1: Masonry units

AS 3700 Masonry Structures

Insulation Materials

AS/NZS 4859.1 – Materials for the thermal insulation of buildings

AS 4426 – Thermal insulation of pipework ductwork and equipment

Cabling

AS/NZS 3008 Electrical installations – Selection of cables

AS 1531 Conductors—Bare overhead—Aluminium and aluminium alloy

AS 1746 Conductors—Bare overhead—Hard-drawn copper

AS 3158 Electric cables—Glass fibre insulatedAS/NZS 3191 Electric flexible cords

AS/NZS 3560 Electric cables—Cross-linked polyethylene insulated—Aerial bundled

AS/NZS 3560.1 Part 1: Aluminium conductors

AS/NZS 3560.2 Part 2: Copper conductors

AS/NZS 4961 Electric cables—Polymeric insulated—For distribution and service applications

AS/NZS 5000 Electric cables—Polymeric insulated

AS/NZS 60702 Mineral insulated cables and their terminations

AS/NZS 60702.1 Part 1: Cables

Appendix A – Reference Documents

A2. Other Documents

Building & Plumbing Commission (BPC)

BPC Building Practice Notes

Victorian Health Building Authority (VHBA)

VHBA Technical Guidelines

VHBA Guidelines for Sustainability in Health Care Capital Works

VHBA Recycled Materials in Healthcare Design and Construction Health Technical Advice (HTA) 2024-002

VHBA Net Zero Building Handbook

Victorian School Building Authority (VSBA)

VSBA Building Quality Standards Handbook (BQSH)

VSBA School Construction and Design Standards

Development Victoria (DV)

DV Sustainability Strategy

Appendix B – Material Descriptions

Table B.1 — Descriptions of materials and their applications – buildings

Material/Component	Application	Description
Structure		
Concrete – In situ	In situ concrete uses include poured concrete slab on ground, suspended slab floors and roofs, foundations, columns and beams, concrete paving.	Concrete mix containing aggregate (fine and coarse), cement and water which is brought to site via a concrete mixer as a wet solution and poured into formwork molds. The MPa refers to the strength grade of the concrete, with higher MPa blends having higher strength.
Concrete – Precast	Pre-cast slab floors, walls, roofs, columns and beams.	Precast concrete elements such as wall panels, beams, and floor slabs are manufactured off-site in controlled environments and then transported to the construction site for quick assembly.
Non-structural concrete	Non-structural concrete includes kerbs, foothpaths, paving.	Concrete mix containing aggregate (fine and coarse), cement and water which is brought to site via a concrete mixer as a wet solution and poured into formwork molds. The MPa refers to the strength grade of the concrete, these applications are usually low strength concrete e.g. 25MPa
Shotcrete (sprayed concrete)	Foundation walls, retaining walls.	Concrete mix brought to site as a wet solution and applied by spraying onto surfaces using compressed air.
Steel reinforcement	Within concrete structure. Within paving.	Steel reinforcement, typically in the form of bar or mesh, is placed within formwork before concrete is poured or in precast concrete during the production process, providing tensile strength to structural elements.
Structural steel	Structural steel uses include primary framing for a building, beams and columns, and roof truss.	Structural steel is delivered to construction sites as prefabricated elements which are then assembled on site to form the building's load-bearing framework.
Blockwork	External or internal masonry wall systems.	Blockwork is laid with mortar to build walls offering strength and durability in buildings.
Bricks	External or internal masonry wall systems.	Commonly made from clay or concrete, bricks are laid with mortar to build walls and facades offering strength and durability.
Composite slabs	Structural flooring/roofing systems.	Composite slabs allow for a thinner layer of concrete (floor slab) by pouring the concrete over a steel decking system, which acts as both a permanent formwork and reinforcement.
Timber joists, floor and framing	Timber floor structure, roof truss.	Timber is usually brought to site on pallets or as pre-assembled systems or trusses. Larger buildings are typically Type A construction per the NCC, representing the most fire-resistant type of construction and restricting the use of timber construction, however smaller buildings may be more readily able to implement timber construction.
Roof		
Metal deck roofing	Roofing.	Aluminum, zincalume, steel sheeting usually installed as thin sheets 2-6mm thickness with limited weight bearing.
Guttering and Downpipes	Capture of rainfall from the roof of a building.	Typically made from steel or aluminium sheeting or high-density plastic, gutters and downpipes are installed along roof edges to capture rainfall.

Material/Component	Application	Description
Floor and wall finishes		
Engineered timber floors / laminate flooring	Decorative flooring.	Multilayer plank flooring system, usually comprising a top layer of timber or aluminum and underlayers made of plywood, hardwood or plastics. There is usually a tongue and grove system to allow the flooring to click together to avoid adhesives and facilitate disassembly.
Underlay	Cushioning layer under carpet or floor finishes.	Rubber or foam system under floor finish to benefit acoustic and/or comfort outcomes.
Vinyl flooring	Waterproof floor finish.	PVC synthetic flooring material durable and easy to clean.
Carpet tiles	Floor finish with acoustic and thermal benefits.	Modular carpet tiles which do not require adhesive and allow for extended life as they can be moved around (e.g. high traffic to low traffic) and individual tiles easily replaced when damaged. They are made up of the primary carpet material and backing.
Tiles	Floor or wall finish.	Porcelain, clay, natural stone or ceramic tiles are typically installed in wet areas or areas requiring waterproofing.
Wall and door protection	Wall and door sheet finish to provide a protection layer.	Wall and door protection is installed on walls and doors to prevent damage from impacts, abrasion or moisture in high traffic areas, particularly within healthcare settings. Wall protection is typically plastic or foam. Door protection is typically aluminium.
Wall and ceiling linings		
Wall and ceiling lining	Sheet lining forming an internal surface for walls, ceilings and partitions internally.	Common materials for wall and ceiling lining include plasterboard and fibre cement sheeting.
Ceiling tiles	Lightweight panels covering ceilings in suspended ceiling systems to cover services and provide acoustic benefits.	Ceiling tiles are made from a range of materials including mineral fibre, fibreglass, and metal.
Cladding and glazing systems		
Metal cladding	External wall cladding systems.	Commonly made from aluminium, steel or composite materials, applied to exterior of buildings to protect against weather elements.
Curtain wall	Weather protection for the building.	Non-load bearing exterior wall system, typically made from glass and aluminium, to enclose buildings for weather protection and natural lighting.
Glazing systems	Glazed doors and windows to provide natural light, views, and ventilation. Also used for internal glazed partitions.	Frames are typically made from aluminium, uPVC, or timber. Key engineering properties for glazing system selection include thermal insulation performance, visible light transmissions, and solar control.
Shading	Installed on or around the building to block sun.	Façade attachments that block or filter sunlight to reduce solar heat gain, improve occupant comfort and improve the building's cooling energy efficiency.

Material/Component	Application	Description
Insulation and membrane		
Insulation batt	Soft batt installed within walls, ceilings, and under floors to provide thermal and acoustic benefits.	Insulation batts come in pre-cut pieces. Common materials include mineral wool, fibreglass, and polyester.
Rigid board insulation	To reduce/prevent heat loss/gain through walls, floors and ceiling of the building.	Typically made of either expanded polystyrene (EPS) or extruded polystyrene (XPS). EPS insulation is more recyclable and lower energy to manufacture. XPS rigid board is highly resistant to moisture absorption, making this type of insulation suitable for applications like under-slab insulation.
Acoustic panels	Acoustic panels are added to walls and ceilings to improve sound quality and reduce reverberation.	Panels contain sound-absorbing materials such as foam, fibreglass, mineral wool, or felt within a frame construction and typically with a fabric covering.
Building envelope membrane / vapour barrier	Provides water tightness, condensation management and/or air tightness in buildings	Plastic layer installed within walls, floors and ceilings to prevent moisture ingress, manage condensation, and/or provide air tightness in a building.
Fixtures and fittings		
Balustrades	Vertical elements around a balcony, mezzanine or terrace.	Traditionally consisting of wooden balusters (vertical elements) and a banister (handrail), balustrades can also be solid structures made from a range of building materials including glass, aluminium and stainless steel.
Joinery	Internal carpentry including cabinetry and built-in furniture such as bench seats.	Joinery is typically made from engineered wood or timber, however steel and glass can also be used.
Pipes		
Pressure Pipes	Water distribution, fire protection	PVC and HDPE are the most common materials used for pressure pipes.
Non-Pressure Pipes	Stormwater drainage, sewage drainage	Typically made from PVC or HDPE. Reinforced concrete pipes can also be used for drainage applications.
Mechanical and electrical systems		
Ductwork	Pathway for heating & cooling, ventilation, smoke extraction and energy recovery.	Installed as part of the mechanical services for the building, HVAC ductwork is commonly made from galvanised steel, aluminium, or stainless steel to provide pathways for air movement.
Cabling	Distribute electrical power, data and communication signals throughout the building.	Typically placed in conduits, trays or risers – cabling is routed through the walls, ceilings and floors of the building to provide power to essential building services.
Conduits	An electrical conduit is a pipe used to house and protect cables and wires.	A range of materials are used for conduits including PVC, polyethylene, aluminium and steel.

Appendix B – Material Descriptions

Table B.2 — Descriptions of materials and their applications – water infrastructure

Material/Component	Application	Description
Ductile iron cement lined (DICL) pipes	Potable water distribution and non-potable gravity mains	Ductile iron pressure pipes internally lined with cement mortar to protect against corrosion and provide hydraulic smoothness.
Steel cement lined (SCL)	Potable water transmission mains and large diameter reticulation	Mild steel pipes with an internal cement mortar lining for corrosion protection and service durability.
Plastic pipes	Non-pressure stormwater, gravity wastewater and limited-pressure applications	Plastic pipes can be used for non-pressure stormwater and gravity wastewater across drainage networks. Limited in pressure application as stipulated by standards.
Reinforced concrete pipes (RCPs)	Gravity wastewater and stormwater mains, culverts, general drainage application	Precast concrete pipes reinforced with steel, designed to withstand the weight of heavy loads
Bedding aggregates	Embedment, haunching and surround for pipes; trench backfill	Granular materials placed around pipes to provide support, load distribution and drainage.
Densely graded base	Trench backfill, structural fill, access tracks, hardstand formation for water assets, subgrade stabilization, liner protection and embankments	Graded granular material meeting compaction and strength criteria, used primarily as a robust, load-bearing foundation with low permeability.

Appendix B – Material Descriptions

Table B.3 — Descriptions of materials and their applications – electrical infrastructure

Material/Component	Application	Description
Electrical cable conductor	HV/LV power transmission and distribution cables; substation connections	Primary conductive metals used in stranded or solid conductors for cables. Copper and aluminium conductors are selected based on current-carrying capacity, mechanical performance, and compatibility with insulation systems.
Cable ladder	Open cable support in substations and switchrooms; plant rooms	Structural ladder systems (side rails with rungs) used to route and support heavier cable runs, facilitate heat dissipation, and allow cable access. Typically manufactured in steel (galvanised/stainless) or aluminium with surface protection suited to the environment.
Cable tray	General cable management, including control and communication cables	Perforated or solid trays providing continuous support for cables along routes. Materials include steel, aluminium, and engineered thermoplastics. Selection considers loading, corrosion environment, EMC, and fire performance requirements.
Communications rack	Housing for networking and control equipment in substations and control rooms	Standardised steel enclosures and frames providing mounting, cable management, ventilation, and security for communications and SCADA equipment.
Conduit	Mechanical protection and segregation for electrical and communications cables and wires	Duct systems to house and protect cables and wires. A range of materials are used for conduits including PVC, polyethylene, aluminium and steel. Selection considers mechanical strength, EMC shielding, and fire performance.
Generator fuel tank	Storage of diesel for standby generators in substations and switchrooms	Fabricated steel or aluminium tanks designed for bunding, fire safety, venting, and monitoring per applicable standards. Surface coatings and material selection are driven by durability and compliance.
Cable and earthing pits - concrete	Access chambers for cable joints, pulls, and earthing terminations	Precast or in-situ concrete pits provide safe access and protection for cable infrastructure.
Earth electrode	Substation earthing grids and structure earthing	Conductive rods, usually copper or copper-clad steel, driven into the ground to connect an electrical system to the earth, achieving target earth resistance and fault current dissipation.
Solar PV	Solar farm; or distributed rooftop system installed on substations, buildings, or ancillary sites for onsite power generation	Converts sunlight directly into electricity using semiconductor-based photovoltaic (PV) panels. PV modules comprising glass, polymer encapsulants, silicon cells, and aluminium/metal frames mounted to racking.
Wind turbines	Wind farm power generation	Steel towers and nacelle frames supporting rotor-generator assemblies. Blades are primarily made of fiberglass/carbon-fibre composites.
Control cubicle	Outdoor/indoor control panels; protection and switchgear enclosures	Fabricated steel cabinets housing electrical control and protection equipment, designed for ingress protection, thermal management, and maintainability.
Lightning protection	Lightning interception for structures and equipment	Steel masts, rods, or catenary systems positioned to intercept strikes and route currents to earth via dedicated downleads and electrodes.
Poles	Overhead line support structures	Rolled or tapered steel poles designed for mechanical loads, wind, clearances, and corrosion protection. Foundation systems vary with soil conditions.

Appendix B – Material Descriptions

Table B.3 — Descriptions of materials and their applications – electrical infrastructure

Material/Component	Application	Description
Switchroom slab	Structural base for transportable or built switchrooms	Reinforced concrete foundation slab designed for load distribution, vibration control, and service penetrations.
Steel masts	Support for equipment (e.g., lighting, antennas)	Tall structural steel masts designed for imposed loads, deflection limits, and durability.
Steel gantries	Support for HV equipment used in substations and transmission lines	Portal or lattice steel structures supporting equipment and conductors, designed for electrical clearances, short-circuit forces and dynamic effects.
Busbars	Rigid conductors within substations and switchrooms	Extruded or fabricated bars typically made from aluminium / copper to conduct high currents between equipment, designed for continuous current rating, temperature rise, dielectric clearances, and short-circuit withstand
Bedding sand	Embedment and backfill for buried conduits and cables	Granular materials providing cable support and thermal properties.
Asphalt	Pavements for substation access roads and hardstands	Bituminous surfacing incorporating reclaimed asphalt pavement (RAP) and other recycled inputs (e.g., glass fines, rubber) within specification limits for performance and durability.
Security fencing	Site perimeter security for substations and HV compounds	Galvanized steel chain-link, welded mesh or expanded metal are common; timber elements may be used where appropriate and compliant.

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to find out how we can support your team:
ecologiq@vida.vic.gov.au

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