

Glossary

Abatement Activity that leads to a reduction in the level of greenhouse gas emissions

Accessible house A house designed to meet the needs of people requiring higher level access from the outset, and usually designed and built with a specific person's needs in mind. An accessible house meets Australian Standard AS 1428.1-2001, Design for access and mobility, and is able to accommodate wheelchair users in all areas of the dwelling. See also 'livable house', 'adaptable house'

AccuRate National benchmark software tool used in rating the thermal performance of homes in Australia. Designed by the CSIRO based on decades of scientific research about the way buildings operate in Australian conditions. AccuRate is accredited for use in NatHERS

Acid sulphate soil Soil that contains iron sulphides, which when exposed to air by drainage or disturbance, produce sulphuric acid, and often release toxic quantities of iron, aluminium and heavy metals

Active solar heating A system that uses roof mounted, solar exposed panels to collect heat and pump it to where it is needed

Adaptable house A livable house that is also able to be easily adapted to become an accessible house should the need arise. Requirements set out in AS 4299-1995, Adaptable housing

Air tightness The level of uncontrolled movement of air in to and out of a building. Measured as the air tightness metric (ACH_{50})

Angle of incidence In relation to windows, the angle that solar radiation strikes glass. When the sun is perpendicular to the glass it has an angle of incidence of 0° . As the angle increases, the effective area of exposure to solar radiation reduces, more solar radiation is reflected, and less is transmitted

Appliance energy rating label See Energy Rating Labelling Scheme

Ashlar Masonry made of large square-cut stones, used as a facing on walls of brick or stone, or the stone used in such masonry

Assessor Person qualified to use energy rating tools (e.g. NatHERS and NABERS) to determine the thermal performance of a building

Autoclaved aerated concrete (AAC) Concrete that has been manufactured to contain lots of closed air pockets. Lightweight and fairly energy efficient, it is made by adding a foaming agent to concrete in a mould, then wire-cutting blocks or panels from the resulting 'cake' and 'cooking' them with steam (autoclaving)

Building Sustainability Index (BASIX) Applies to all residential dwelling types and is part of the development application process in New South Wales

Bermed Backfilled with a mound or wall of earth or sand

BERS Pro Software tool developed by Solar Logic and used in rating the thermal performance of homes in Australia. BERS Pro is accredited for use in NatHERS

Biodiversity The variety of all life, the different plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part

Biomimicry Studies nature's models and then imitates or takes inspiration from these designs and processes to solve human problems

Biophilia The urge to affiliate with other forms of life; (love of nature) is developing from the recognition that vegetation and natural environments have a measurable impact on our psychological health

Bioshading Using deciduous vegetation to shade a house from sunlight in summer but allow it through in winter

Blackwater Water that has been mixed with waste from the toilet

Brick dwarf wall A wall of less height than a storey of a building, or one that supports the sleeper joists under the lowest floor of a building

Buck A rough wooden frame into which a door or window can be installed. Often used in strawbale construction, it is designed to withstand compression loads

Buildability The extent to which the design of a building facilitates ease of construction, subject to the overall requirements for the completed building

Glossary and tools

Glossary

Building Code of Australia (BCA) The BCA contains technical provisions for the design and construction of buildings and other structures in Australia. The BCA is Volumes One and Two of the National Construction Code (NCC). The BCA is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and state and territory governments. The BCA has been given the status of building regulation by all states and territories

Building envelope The parts of a building's walls, roof, ceilings and floors that separate artificially heated or cooled spaces from the exterior of the building or other spaces within the building that are not artificially heated or cooled

Carbon dioxide equivalent (CO₂-e) A standard measure that takes account of the different global warming potentials of each greenhouse gas to express an amount of greenhouse gases in a common unit

Carbon neutral (carbon zero) Applies to buildings that use renewable energy sources on site to generate energy for their operation, so that over a year the net amount of energy generated on site equals the net amount of energy required by the building

Carbon offsetting A process that removes greenhouse gases or averts their emission into the atmosphere and destroys, stores or 'sequesters' them for periods of varying duration depending on the sequestration method. Carbon offsets are usually purchased by individuals or companies and used to cancel out or 'offset' the emissions they generate during their normal course of business or day-to-day life

Carbon positive Applies to buildings that make a positive contribution by producing more renewable energy on site than the building requires and feeding it back into the grid

Carbon price A financial cost imposed on individuals or organisations for causing the emission of greenhouse gases into the atmosphere. It could be a tax imposed by government, the outcome of an emissions trading market or a hybrid of taxes and permit prices

Charged line In relation to rainwater supply, a pipe in which water from the collection point is pushed up to the tank by the pressure of water in the pipe. A charged line is needed if the pipe does not slope downwards all the way to the rainwater tank, e.g. it may go down, underground, and then up again to reach the tank

Chasing A groove, furrow or trench

Chlorofluorocarbons (CFCs) A class of refrigerants that have a very high global warming potential

Cinva A ram used to manually produce earth blocks

Cladding The non-loadbearing skin or layer attached to the outside of a home to shed water and protect the building from the effects of weather

Clerestory Any high window above eye level

Climate change A change to the climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is additional to natural climate variability over comparable time periods

Cob A mixture of clay and straw, used as a building material

Coefficient of performance A measure of appliance energy efficiency, indicating the kilowatts of heating or cooling extracted by an appliance from external air, water or earth for every kilowatt of electricity used. The higher the coefficient, the more efficient the appliance

Co-generation The simultaneous production of electricity and useful thermal energy from a single fuel source, typically natural gas. See also 'trigeneration'

Cold cathode fluorescent lamp (CCFL) A lamp that uses a discharge in mercury vapour to develop ultraviolet light, which in turn causes a fluorescent coating on the inside of the lamp to emit visible light

Colour rendering index (CRI) Rates the ability of the light to accurately portray colours of objects in the space being lit

Commercial buildings Class 3 and Classes 5–9 buildings as defined in the National Construction Code

Compact fluorescent lamp (CFL) Lamp using a fluorescent light bulb that has been compressed into the size of a standard-issue incandescent light bulb.

Composting toilet A dry toilet that uses a predominantly aerobic processing system that treats excreta, typically with no water or small volumes of flush water, via composting or managed aerobic decomposition

Compressive strength The capacity of a material to resist breaking under compression

Conduction The transfer of heat from one substance to another by direct contact

Conductive loss or gain Loss or gain of heat directly through contact with a person, object or floor

Construction systems The combination of materials used to build the main elements of a house — roof, floor and walls

Convection Heat transfer in a gas or liquid by the circulation of currents from one region to another

Convective air movement See 'stack ventilation'

Convective heating A process using the natural circulation of air across a heat source to warm a space

Coolth In thermal mass, the state of retaining coolness, generally because a material (e.g. a concrete slab, soil substrate) is slow to heat up

Correlated colour temperature (CCT) The perceived shade of white light emitted by a lamp

Cradle to cradle A design protocol that advocates the elimination of waste by recycling a material or product into a new or similar product at the end of its intended life, rather than disposing of it

Cradle to gate An assessment of a partial product life cycle from resource extraction or manufacture ('cradle') to the factory gate, i.e. before it is transported to the user or consumer. The use phase and disposal phase of the product are usually omitted

Cradle to grave A company taking responsibility for the disposal of goods it has produced, but not necessarily putting the products' constituent components back into service (see life cycle assessment)

Cross over apartments Apartments with two opposite aspects and with a change in level between one side of the building and the other

Cross through apartments Apartments on one level with two opposite aspects

Deflocculate To reduce a liquid from a flocculent state (i.e. having clumps of flocculated particles suspended in it) by dispersing the particles

Demand response The automated alteration of an electrical product's normal mode of operation in response to an initiating signal originating from or defined by a remote agent, usually with the objective of reducing the product's power demand (as defined in AS 4755)

Dew point The temperature at which dew forms

Differential pricing In electricity supply, a pricing method in which electricity has different prices based on the time of use. Also called 'time of use', 'time-variant' or 'flexible' pricing

Direct emissions Emissions produced from sources within the boundaries of a building, e.g. burning of natural gas in water and space heaters

E0 A measure of formaldehyde emission from plywood and other timber products. The lowest rating, Super E0, has the fewest emissions

Earth coupling The practice of building into the ground to take advantage of the thermal mass of the earth, which typically remains a constant temperature at a certain depth below grade, depending on the climate. Also known as 'ground coupling', 'thermal coupling'

Earth render A mud or clay slurry, which may be reinforced with straw or cow dung, applied to mud brick or cob walls, or applied to a strawbale wall

Earth-sheltered house The practice of using earth against building walls for external thermal mass, to reduce heat loss, and to easily maintain a steady indoor air temperature. Also known as 'earth-covered'

Ecological carrying capacity The carrying capacity of a biological species in an environment is the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water and other necessities available in the environment. In population biology, carrying capacity is defined as the environment's maximal load, which is different from the concept of population equilibrium

Ecological water flow The quantity, timing and quality of water flows required to sustain freshwater and estuarine ecosystems, and the human livelihoods and wellbeing that depend on these ecosystems

Ecospecifier An international database (www.ecospecifier.com.au) developed in Australia detailing certified and verified sustainable products

Embodied emissions The greenhouse gas emissions caused directly or indirectly from the production of embodied energy

Embodied energy The sum of all energy used to extract, transport, manufacture and install a building material

Energy efficiency The ratio of the level of services or functions provided to the energy used to provide that output

Energy management system (EMS) A computer system used in buildings or organisations to monitor, control and optimise the performance of their power use

Energy Rating Labelling Scheme An Australian scheme which assigns star ratings to a range of appliances. The star rating gives a comparative assessment of the appliance's energy efficiency and the comparative energy consumption (usually kilowatt hours/year) estimates the annual energy consumption of the appliance

Energy star An international standard for energy efficient consumer products, originating in the USA

Environmental Certification Scheme (ECS) An environmental labelling scheme for textile floor coverings administered by the Carpet Institute of Australia

Evacuated tube A glass tube which has had all air removed, often used in solar hot water systems

Expanded polystyrene (EPS) A rigid plastic foam insulation that provides high insulation values in addition to having strong structural integrity, being environmentally safe, and having a closed cell structure that limits excessive moisture

Glossary and tools

Glossary

Extender A substance added to cement either to reduce cost or carbon emissions, or to some extent modify its properties

Externalities Occur where a party either does not pay the full costs of their actions (a negative externality) or is not fully paid for the benefits that they create for other parties (a positive externality or a 'spillover' to other parties)

Extruded foam Generally, polystyrene

FirstRate Software tool developed by the Victorian Government and used in rating the thermal performance of homes in Australia. FirstRate is accredited for use in NatHERS

Fixed appliances and equipment Appliances, equipment and associated systems that are fixed in place within or on a building, have dedicated connections to the building's energy or water supply and would normally not be moved from building to building on change of ownership or lease

Flagstone Flat stone from sedimentary rocks split along the bedding planes

Flexible adaptation pathways Approaches incorporated into the design of a building that permit adaptation to climate change in the future without too much additional expense

Floor plate The overall footprint of a floor in a multi-storey building, i.e. all apartments on the same level

Fly ash Fine grey powder consisting mostly of spherical glassy particles that are produced as a by-product in coal fired power stations and used in concrete products

Formwork A structure, usually temporary, that is used to mould poured concrete into required dimensions and support it until it is able to support itself

Fretting Flaking or crumbling of clay brick surfaces due to water migrating into the wall and transporting salt to surface of brick where it forms crystals in the voids

Furring channel A steel member used to support interior finish; the smallest horizontal member of a suspended ceiling

Genset An engine-generator, a machine used to generate electricity

Geopolymers New materials for fire- and heat-resistant coatings and adhesives, medicinal applications, high-temperature ceramics, new binders for fire-resistant fibre composites, toxic and radioactive waste encapsulation and new cements for concrete (e-concrete)

Geotextile Permeable fabrics which, when used in association with soil, have the ability to separate, filter, reinforce, protect or drain

Geothermal heat pump A pump that uses the natural heat storage ability of the earth or the earth's groundwater to heat and cool a building

Going dimension (stairs) A measurement from the front of the nosing on one tread to the front of the nosing on the next tread. A person using the stairs would move this distance forward with each step they took

Green roof/wall Roof or wall that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane or attached to a framework. It may also include additional layers such as a root barrier and drainage and irrigation systems. Also known as 'living roof/wall'

Green Star – Communities A rating tool that defines best practice benchmarks in five sustainability categories for the planning, design and delivery of sustainable communities

Green Tick (furniture) Certification program developed by Furntech-Australasian Furnishing Research and Development Institute, to confirm that a piece of furniture meets a robust yet realistic level of sustainability requirements

Green Tick® Symbol used to identify a product or service that has been independently certified as environmentally sustainable

Greenhouse gases The atmospheric gases responsible for causing global warming and climate change. The major greenhouse gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆)

Greenhouse intensity The quantity of emissions produced directly or indirectly per unit of output

GreenPower A national accreditation program that sets environmental and reporting standards for renewable electricity products offered by energy suppliers to households

Greywater Wastewater from non-toilet plumbing fixtures such as showers, basins and taps

Grid The network of wires, substations, transformers and switches that carry electricity from the generator to the consumer. The grid is designed to meet both normal 'baseload' demand and seasonal peak demand for residential, commercial and industrial purposes.

Gripping A method for pre-compressing straw bales which runs high tensile wire vertically around the bale walls, through the bottom plate and over the top plate, and holds the wire in tension with proprietary soft metal clamps

Gross energy requirement (GER) A measure of the true embodied energy of materials, including extractions, transport, manufacturing and infrastructure

Ground coupling See 'earth coupling'

Header tank A raised tank that maintains a constant pressure or supply to a system, especially the small tank that supplies water to a central heating system

Heat exchanger A device used to transfer heat from fluid or air on one side of a barrier to fluid or air on the other side without bringing them into direct contact

Heat island effect A situation in which built-up areas become hotter than nearby rural areas due to heat reflected from buildings, pavements and transport

High mass construction A building construction approach using masonry, adobe or other building materials that can lessen the extremes of daily temperature fluctuations, especially in arid climates

Hydronic system A system that circulates hot water or coolant through radiator panels in rooms, supplying a mix of convective and radiant heat; usually gas fired but can be heated by a wood fired heater, solar system or heat pump

Indigenous (plants) Original flora that occur naturally in an area

Indirect emissions Emissions generated elsewhere as a consequence of energy use in a building, e.g. emissions at electric power stations

Information failures A range of situations where a lack of information held by a decision maker can lead to resources being allocated less efficiently than if full information was available to inform the decision

In-home display (IHD) A dedicated display device designed to deliver energy-related information such as energy consumption, pricing or service messages from a utility or third party energy service provider to a residential customer. These devices may also enable the customer to communicate back to the utility or energy service provider

Insulated glass unit Combination of two or more glazing layers sealed with a gap between the layers

Insulating concrete forms Interlocking modular units that are dry-stacked (without mortar) to form walls, floors and roofs, and then filled with concrete

Inverter An apparatus that converts direct current into alternating current

Lagging Thermal insulation for wrapping around pipes, boilers

Laminar flow (wind) Smooth, orderly movement of wind, in which there is no turbulence

Latent energy The energy absorbed by or released from a substance during a phase change from a gas to a liquid or a solid or vice versa

Lateral load Wind or other load against the face of the wall

Leachate Any liquid that, in passing through matter, extracts solutes, suspended solids or any other component of the material through which it has passed

Life cycle assessment (LCA) The total environmental impact of a material or product through every step of its life from obtaining raw materials to manufacture, transport, storage, use, and disposal or recycling

Life cycle costing (LCC) A method of economic analysis that takes into account expected costs over the useful life of an asset

Light emitting diode (LED) A form of lighting that illuminates not through a filament but through the movement of electrons in a semiconductor material

Lightweight construction Construction using materials susceptible to damage by impact, pressure or abrasion. This includes sheet or board material, plaster, render, concrete and concrete products containing pumice or other soft material, and masonry less than 70mm thick

Light organic solvent particles (LOSP) Wood preservatives that contain insecticides for internal use, combinations of fungicides and insecticides for external use, and sometimes water repellents

Liveable house A house designed to meet the changing needs of most home occupants throughout their lifetime without the need for specialisation. See also 'accessible house', 'adaptable house'

Living Building Challenge A philosophy, advocacy tool and certification program that promotes the most advanced measurement of sustainability in the built environment

Living roof/wall See 'green roof/ wall'

Local generation The production of electricity from a generator attached to a building or a nearby site directly wired to the building, or from a generator connected to the same distribution network as the building. Also referred to as on-site, distributed or embedded generation

Low emissivity (low e) glass Low thermal emissivity (applied to glazing), i.e. transmits less heat

Low mass construction See 'lightweight construction'

Low-emission energy Energy that has been generated with significantly fewer emissions than average grid-supplied energy

Luminaire A complete light fitting with one or more light bulbs, the socket and wiring, and any other parts to hold it in place

Maldaptation A trait that is (or has become) more harmful than helpful

Micro switch An electric switch requiring very little physical force to activate, e.g. microwave touchpad

Glossary and tools

Glossary

Minimum Energy Performance Standard (MEPS) A minimum efficiency standard that must be achieved by all appliances belonging to a particular group (e.g. refrigerators)

NABERS The National Australian Built Environment Rating System, which measures the environmental performance of Australian buildings, tenancies and homes. It does this by using measured and verified performance information, such as utility bills, and converting them into a star rating scale from 1 to 6 stars

NatHERS The Nationwide House Energy Rating Scheme, which provides a framework that allows accredited computer software tools to rate the potential energy efficiency of Australian homes, by assessing a building's thermal performance of the building's design

NatHERS stars A star rating system used to score the thermal comfort of a home, ranging from 0 to 10. A 0 rated home gives practically no protection from hot or cold weather; a 5 star home indicates a moderate level of thermal performance but still requires artificial heating and cooling; a 10 star home shouldn't require any artificial heating or cooling

Nature strip The grass strip in front of a house between a fence or footpath and a roadway. Also known as 'street verge'

Noggin Brickwork or timber braces in a timber frame

Normalisation An adjustment technique to allow buildings of varying structures, sizes, intended service levels or location to be fairly compared by expressing these characteristics as a multiple of a common unit of measurement, e.g. the energy use of buildings of different sizes could be compared by expressing the energy use as a multiple of a unit of the floor area, such as megajoules per square metre

North—true and magnetic True north is a fixed point of the earth's surface. Magnetic north varies in position due to the movement of molten metal below the earth's crust. At the present time magnetic north is in far northern Canada

Off-form concrete Concrete cast against formwork. The finished product takes on the texture of the surface it is cast against

Off-peak tariff A cheaper tariff offered by electricity providers to consumers who consent to having limits placed on when their water heaters or other devices can operate

Operational energy Energy consumed during a building's operational life

Organochlorine pesticides Insecticides (e.g. chlordane and dieldrin) previously used to control insects such as termites in houses. Their use in Australia was banned in the late 1980s because of health and environmental concerns

Orientation Positioning of a building in relation to seasonal variation in the sun's path and to prevailing wind patterns

Party wall A dividing partition between two adjoining buildings or units; also a division between separate units in a multi-unit apartment complex

Passive cooling Technologies or design features used to cool buildings without power consumption

Passive design Design that takes advantage of the climate to maintain a comfortable temperature range in the home

Passive heating A system of features incorporated into a building's design to use and maximise the effects of the sun's natural heating capability

Peak demand The maximum energy demand in a given location over a given time, e.g. per day or over a season, often driven by cooling or heating loads due to temperature extremes

Peak oil The point in time when the global production of oil reaches its maximum rate, after which production gradually declines

Perpend A vertical layer of mortar between two bricks

Phase-change material (PCM) A substance with a high heat of fusion which, melting and solidifying at a certain temperature, is capable of storing and releasing large amounts of energy. Heat is absorbed or released when the material changes from solid to liquid and vice versa

Photovoltaics A method of generating electrical power by converting solar radiation into direct current electricity

Plug-in hybrid electric vehicle (PHEV) A vehicle powered by both electricity and conventional fuel that has a large, high-capacity battery bank which can be recharged either by plugging it into normal household current or using the on-board charging capabilities of the combustion engine

Portable plug-in appliances Appliances and equipment that are not fixed in place in a building, would normally be moved from building to building on change of ownership or lease, and are powered by plugging them into any mains socket, e.g. televisions, fridges, computers

Positive development Development that has a net positive ecological and social impact

Post and beam framing system A framing system that structurally supports the roof and allows the use of non-loadbearing infill systems such as straw bale and mud brick

Process energy requirement A measure of the energy directly related to the manufacture of the material

Psychrometric chart A chart for calculating values of relative humidity, absolute humidity and dew point

Purlin A horizontal beam along the length of a roof supporting the rafters

Racking load Wind or other load along the direction of the wall

Radiation Transfer of heat to cooler object or person through contact, as contrasted with that transferred by conduction or convection

Rain-head A container located between the gutter and downpipe that aids the flow of water away from the roof. It acts as an external overflow point to minimise water surges into the stormwater system

Rainwater Water that has fallen as rain and contains little dissolved mineral matter

Rammed earth A mixture of sand, loam, clay and other ingredients rammed hard within forms as a building material

Rating tool A procedure (e.g. a computer program) for taking predefined data on a particular environmental characteristic of a building and converting this data into a rating using algorithms and assumptions built into the tool. Rating tools simply provide information on the level of performance and do not set a level required for compliance with building standards. See 'Building Rating tools' at the end of this glossary

Reactive soil Any type of soil that, when exposed to certain physical or geological conditions, will undergo changes in shape and structure

Reed switch An electrical switch operated by an applied magnetic field

Renewable energy Energy that is derived from sources that are renewed by natural processes or for all practical purposes cannot be depleted, e.g. solar energy, hydropower, wind, tide, geothermal and biomass

Residential buildings Class 1, 2 and 4 buildings as defined in the Building Code of Australia

Ring main system A pipe system used to distribute hot water to apartments from the building's boiler to ensure that there is hot water near each apartment at all times. Each apartment then has a trunk main—a straight pipe that comes off the ring main to the apartment

Ripple control system A load control system which shuts down non-essential devices, such as electric water heaters, air conditioners or pool pumps, using a high frequency signal and communicating controller

Running bond A brick (or bale) laying arrangement in which bricks are butted end to end with joints that fall in the middle of the brick on the rows above and below

R-value A measure of resistance to the flow of heat through a given thickness of a material (as insulation) with higher numbers indicating better insulating properties

Saddle notched A joint made for overlapping round logs in log construction by scooped depressions in the members

Sarking Reflective foil insulation. Also a layer of boards or bituminous felt placed beneath tiles or other roofing to provide thermal insulation or to prevent water entry

Screed A strip of wood, plaster or metal placed on a wall or pavement as a guide for the even application of plaster or concrete

Scribing The woodworking technique of shaping the end of a moulding or frame component to neatly fit the contours of an abutting member. Also called 'coping'

Silica fume A by-product from the production of silicon metal or ferrosilicon alloys and added to concrete to increase strength and durability

Skillion roof A sloping roof surface, often not attached to another roof surface. Sometimes called a shed, flat or lean-to roof

Small-scale technology certificate (STC) A tradeable commodity attached to eligible installations of renewable energy systems, including solar panels, solar water heaters and heat pumps

Smart appliance A product that uses electricity for its main power source which has the capability to receive, interpret and act on a signal received from a utility, third party energy service provider or home energy management device, and automatically adjust its operation depending on both the signal's contents and settings from the consumer

Smart Approved WaterMark Australia's water conservation label, identifying and promoting products and services that help save water

Smart grid An electrical grid that uses information and communications technology to gather and act on information, such as information about the behaviours of suppliers and consumers, in an automated fashion to improve the efficiency, reliability, economics and sustainability of the production and distribution of electricity

Smart home Automation of the home to provide improved convenience, comfort, energy efficiency and security; may include centralised control of lighting, heating, ventilation, air conditioning, appliances, security locks of gates and doors, and other systems

Glossary and tools

Glossary

Smart meter An electrical meter that records consumption of electric energy in intervals of an hour or less and communicates that information at least daily back to the utility for monitoring and billing purposes. Smart meters enable two-way communication between the meter and the central system

Soakwell A trench or cavity dug into the ground and connected to the downpipe from a roof, allowing rainwater to seep into the earth rather than flood near the house

Solar access The amount of useful sunshine striking glass in the living spaces of a home

Solar cell Any device that directly converts the energy in light into electrical energy through the process of photovoltaics

Solar heat gain coefficient (glazing) (SHGC_w) Measures how readily heat from direct sunlight flows through a window system. The SHGC is the fraction of incident solar radiation admitted through a window, directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits

Solar heat gain coefficient (SHGC) That fraction of incident solar radiation that actually enters a building through the entire window assembly as heat gain

Sound transmission class A single number rating of the effectiveness of a material or construction assembly to retard the transmission of airborne sound

Space frame system A truss-like, lightweight rigid structure constructed from interlocking struts in a geometric pattern

Spall flake Flakes of a material that have been broken off a larger solid body and can be produced by a variety of mechanisms, including corrosion and weathering

Split incentives A situation in which the parties engaged in a contract have different goals and levels of information, making it difficult to achieve an agreement that benefits them both. A common example in relation to buildings is where landlords have little incentive to upgrade the energy efficiency of their building as the tenant gains the benefit of reduced energy bills

Squinch A construction which fills in the upper angles of a square room so as to form a base to receive an octagonal or spherical dome

Stack ventilation The upward movement of air through openings in a building fabric due to thermal buoyancy and/or negative pressure generated by the wind over the roof. Also known as convective air movement

Stair riser The near-vertical element in a set of stairs, forming the space between one step and the next

States Where Australian state governments are mentioned in this publication, this also includes territory governments

Stiffened raft slab Concrete slab that floats on reactive soils

Stormwater All rain that falls on the roof or land, plus anything it carries with it as it drains off the site

Strip footings Standard rectangular, reinforced concrete footings typically positioned under loadbearing or masonry walls where lightweight floor framing is used

Structural insulated panel (SIP) An insulated layer of rigid insulation material sandwiched between two structural skins of sheet metal, plywood, fibre cement or engineered timber

Sustainable harvesting Ecologically, harvesting plants and animals that allows population numbers to be maintained or to increase over time

Sustainable material Does not impact negatively on non-renewable resources, the natural environmental or human health

Temperature differential (ΔT) Heat flow through any building element (e.g. wall, floor, ceiling, window) is directly proportional to the temperature difference on either side of that element. This is called delta T (ΔT) or temperature differential. The greater the temperature differential, the greater the heat flow through the element

Tension A force tending to stretch or elongate a material

Thermal bridging Thermal bridging occurs when a more conductive (or poorly insulating) material allows heat flow across a thermal barrier

Thermal comfort A person's subjective feeling of how comfortable the surrounding temperature is

Thermal coupling See 'earth coupling'

Thermal lag The amount of time taken for a material to absorb and then re-release heat, or for heat to be conducted through the material

Thermal mass Dense material able to absorb and store warmth and 'coolth': the 'battery system' of passive design

Thermal performance The effectiveness of a building envelope in maintaining acceptable levels of human comfort in the building relative to the outside weather conditions, through minimising the need for artificial heating or cooling. In relation to a particular building material or element, the extent to which the material or element reduces or promotes heat loss or heat gain

Thermosiphon A method of passive heat exchange based on natural convection, which circulates a substance (liquid or gas such as air) without the need for a mechanical pump

Transit oriented development (TOD) A vibrant, relatively dense and pedestrianised mixed-use development precinct, featuring quality public space and immediate access to high-frequency public transit

Transom A window above a door

Trigeneration Production of three forms of energy (electricity, useful heat and cooling) from the same process. Usually a co-generation unit with an additional device to produce cooling

Trombe wall A sun-facing wall separated from the outdoors by glass and an air space, which absorbs solar energy and releases it selectively towards the interior at night

Truss A framework, e.g. of rafters or struts, supporting a roof

Truth window An opening revealing the layers or components within a wall. Used in strawbale homes

UN Millennium Development Goal (MDG) The MDGs are eight international development goals that were officially established following the Millennium Summit of the United Nations in 2000, to be achieved by 2015. The goals are: 1. Eradicating extreme poverty and hunger, 2. Achieving universal primary education, 3. Promoting gender equality and empowering women, 4. Reducing child mortality rates, 5. Improving maternal health, 6. Combating HIV/AIDS, malaria, and other diseases, 7. Ensuring environmental sustainability, 8. Developing a global partnership for development

Universal design The design of products and environments so that they are usable by all people to the greatest extent possible without the need for adaptation or specialised design

U-value A measure of heat loss in a building element such as a wall, floor, roof or window, which demonstrates how well parts of a building transfer heat. The lower the U-value, the better the insulating ability. Expressed as U_w in windows

Visible transmittance In window glass, the amount of visible light that is transmitted

Volatile organic compounds (VOC) Carbon containing chemicals that evaporate into the atmosphere at room temperature; identified as a potential health hazard

Volumetric heat capacity The ability of a given volume of a substance to store internal energy while undergoing a given temperature change, but without undergoing a phase transition

Waffle pod A type of slab constructed entirely above the ground by pouring concrete over a grid of polystyrene blocks known as 'void forms'

Water Efficiency Labelling Scheme (WELS) Australia's water efficiency labelling scheme, which requires certain products to be registered and labelled with their water efficiency in accordance with the standard set under the Commonwealth *Water Efficiency Labelling and Standards Act 2005*

Water sensitive urban design (WSUD) The integration of water cycle management into urban planning and design

Watertable Upper level of underground soil and rocks permanently saturated with water

Wattle and daub Panels of woven timber lattice set in timber frames rendered with a mix of soil, clay, straw and other materials

Weighted sound reduction index (Rw) Metric used by the Building Code of Australia for indicating the effectiveness of a structure as a noise insulator

Wet bulb temperature The temperature a parcel of air would have if it were cooled to saturation (100% relative humidity) by the evaporation of water into it; it is the lowest temperature that can be reached under current ambient conditions by the evaporation of water only, and is the temperature felt when the skin is wet and exposed to moving air

Wetback system A heating or cooling system that uses water to exchange heat

Wicking Absorb or draw off liquid by capillary action

Wind rose A diagram depicting the relative frequency of wind direction and speed at a location over a period of time

Window Energy Rating Scheme (WERS) A scheme that enables windows to be rated and labelled for their annual energy impact on a whole house, in any climate of Australia. To participate window makers must obtain energy ratings for their products from a rating organisation that is accredited by the Australian Fenestration Rating Council. WERS is managed by the Australian Window Association

Xeriscape Landscaping designed to require minimal or no irrigation to maintain plants

Zero emission (zero energy) Applies to buildings that use renewable energy sources on site to generate energy for their operation, so that over a year the net amount of energy generated on site equals the net amount of energy required by the building

Zero-lot line A residential property on which one side of the house comes up to or almost up to the property edge and thus creates more usable outdoor space