APPENDIX L - MOLONGLO DEVELOPMENT SUSTAINABILITY TARGETS

FROM HERE TO THERE

Our vision is to create places that are environmentally responsible, healthy, and inclusive. Compelled by this purpose, we have produced From Here to There: a manual that assists us to take action against climate change using the resources we have, and to share our learnings with others.

Because it can be difficult to know where to begin or the best ways to make change, From Here to There sets out bold targets accompanied by practical strategies, guides and tools for us to reduce our environmental impact. It focuses on Molonglo's three principal operations: Our Projects, Our Company, and Our Circle. Informed by clear science-based facts, each area sets high standards for us to achieve, as well as our suppliers and those who inhabit our places. Guided by this manual, our commitment is to continue to reduce our emissions to meet the Paris Agreement goals that will limit global warming.

From Here To There
Our Projects: Targets and Strategies

Our Ambition
Molonglo is committed to creating resilient, inclusive and environmentally sustainable communities through our developments. Our ambition is to enhance quality of life by maximising our restorative impact on the planet and minimising harm. To achieve this, we've established a rigorous, measurable briefing framework that will be integrated in all our future projects with an aim to embed and demonstrate leading sustainability targets and strategies that are tailored to the local context.

Setting our Ambition
Our briefing framework is based on eight core themes to achieve environmentally responsible practice. Each theme sets out clear targets and strategies to implement, and defines an ambitious baseline for Molonglo's development projects. This ensures that best practice expectations for local industry are met as a minimum starting point. The guidelines also include a series of additional Stretch Targets that enable individual project briefs to be further tailored to the opportunities and constraints presented by each site. They encourage our developments to demonstrate innovative practice and industry leadership to pursue carbon neutral emissions, reaching for ambitious sustainable development targets whenever it is practically and economically feasible. Reasonable risk and cost premiums should not rule out our aspiration to explore and apply strategies that promote environmental responsibility and innovation. These have the potential to provide long-term asset value and wider benefits.

Realising our Ambition
Our framework references the most relevant and internationally recognised performance targets and rating systems, as well as locally understood and endorsed benchmarking frameworks. This means the delivery of Molonglo project developments can be streamlined across a variety of sites globally. We recommend that flexible methodologies are adopted to help shape our project development plans, which seek to integrate design, construction and operations to optimise built performance (known as the Soft Landings approach). Flexible methodologies provide a consistent and reliable process to ensure that our ambitious targets are translated from a project's inception to its operational stages.

Operational Carbon Emissions

Definition

Do more, with less.
The primary aim of Operational Carbon Emissions is to optimise building performance, providing health and comfort to occupants with the least amount of energy. The secondary aim is to reach carbon neutrality by 2030 in line with the Paris Agreement climate targets. These aims are pursued through a hierarchy of methods:

1. Passive design strategies to enhance energy efficiency
2. Low energy appliances, systems and technologies
3. Low emissions waste management systems
4. On-site renewable energy
5. Green Power supply for remaining energy supply
6. Carbon Offsetting

Targets

Baseline

1. All buildings to achieve Net-Zero operational carbon emissions (Scope 1 and 2)
2. Reduce operational energy demand by at least 20% compared to a code compliant reference building
3. Building Airtightness <5.0 m^3/m^2hr@50Pa
4. Fossil Fuel Free (100% electric operation, no gas)
5. 100% Green Power supply
6. Recycle minimum 80% of all operational waste

Stretch

1. All buildings to achieve Net-Zero operational carbon emissions (Scope 1, 2 and 3)
2. Reduce operational energy demand by at least 30% compared to a code compliant reference building
3. Building Airtightness <1.0 m^3/m^2hr@50Pa
4. Reduce on-site sale and consumption of high-emissions foods and services
5. Compost or divert 100% of organic waste from landfill

Baseline Strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct high-level assessment of site opportunities including:

- Macro and micro-climate (referencing local climate data) for passive design and operational potential.
- Massing, orientation and siting potential to maximise passive design and operational strategies.
- Potential for on-site renewable energy generation and distribution, including battery storage.
- Identify and select the most relevant third party benchmark system for the project and prepare a high-level summary of requirements.

RIBA 2 - Concept Design

- Design to be 100% electric (note: commercial cooking pending tenant consultation).
- Undertake preliminary energy modelling so design meets performance targets.
- Use all available roof area for photovoltaic cells to maximise onsite renewable energy generation, taking into consideration the use of roofs for other needs, such as mechanical plant or garden terraces.
- Assess feasibility of new renewable energy generation, distribution technologies and systems.
- Include baseline targets in the Waste Management Plan as prepared by a Waste Consultant. Assess feasibility of waste recycling and organic waste treatment potential (on-site or off-site)

RIBA 3 and 4 - Spatial Coordination and Technical Design

- ESD consultant to utilise Green Star or NABERS compliant energy modelling tools (e.g. IES, EnergyPlus software) to test performance against targets and inform design development.
- Follow Passive House design methodology.
- Passive House (PH) consultant to undertake Passive House Planning Package (PHPP) modelling to test and verify building performance for energy consumption and indoor environmental quality (IEQ).
- Engage an accredited Independent Commissioning Agent (ICA) to manage all building engineering services to ensure targets are met.
- Include baseline targets in tender specification documents.
- Engineer or ESD consultant to specify metering and monitoring systems to measure performance against targets.
- Provide metering and Building Management System or other systems that monitor use of occupants' energy and carbon emissions, and waste.

RIBA 5 and 6 - Construction and Handover

- Test building airtightness (pre-test at lock up and final test at practical completion).
- Engage an accredited ICA to ensure services/plant are installed and tuned to meet performance targets.
- ESD consultant or PH consultant to undertake final certification processes for selected third party Quality Assurance or Benchmarking Systems.
- Provide all tenants with a Tenant Handbook that describes building operational systems, how to use them and waste management guidelines.

RIBA 7 - Asset Management

- Agree Green Power Purchase.
- Complete Post-Occupancy evaluation and suggest strategies to tune buildings for reduced energy use and operational carbon emissions.
- Use Building Management System data for continued energy management and systems tuning.
- Ensure Tenant Handbook reflects requirements of the relevant targets including specific occupant input/actions or necessary maintenance processes.
- Vegetarian catering for all on site events

Stretch Strategies
(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Adopt flexible methodology for project development plan to optimise built performance with integrated design, construction and operations (Soft Landings approach)
- Integrate a green energy distribution system such as an embedded network with on-site photovoltaic cell generation. Consider potential for energy storage through batteries or thermal energy storage (e.g. residential hot water).
- Engage Certified Passive House (PH) Consultant to advise on meeting stretch targets. The PH consultant must be included within the core design team.
- Undertake preliminary Passive House Planning Package (PHPP) modelling to ensure design meets performance targets.

RIBA 5 and 6 - Construction and Handover

- Prioritise vegetarian food and beverage tenants who use sustainably sourced, low-emissions food such as fruit, vegetables, grains, pulses etc.

RIBA Stages 7 – Post-Occupancy

- Conduct annual reporting on energy consumption, waste management efficiencies and renewable energy generation capacity (as applicable).
- All events on site to be zero waste.

Supporting Information

Metric

- Energy: kWh/m^2/y
- Carbon: kgCO2-e/ m^2/y
- Cost: AUD $/year
- Air Tightness: m^3/m^2hr@50Pa

Current ‘best practice’ benchmark

- Residential: NatHERS 7 star
- Non-residential: 5 Star NABERS / Green Star 5 Star / equivalent performance

Third Party Quality Assurance / Benchmarking systems

Residential
- Minimum 8.0 Star NatHERS rating
- Achieve 6 Star Green Star Buildings Rating (certified)*
- Passive House Standard (< 15 kWh/m^2/y heating and cooling)*

Non-residential (base-build)

- Minimum 5.5 Star NABERS rating (without Green Power)
- Achieve 6 Star Green Star Buildings Rating (certified)*
- Carbon Neutral Certification (Climate Active)*
- Zero Emissions Certification (ILFI)*
- Living Building Challenge - Energy Petal Certification (ILFI)*

Design teams are encouraged to select at least one Quality Assurance or Benchmarking System. Systems marked with an * are complimentary so only pursue one of these, never multiple.

References

Nationwide House Energy Rating Scheme (NatHERS)
National Australian Built Environment Rating Scheme (NABERS)
Passivhaus Institut (PHI) Passive House Standard – 'Classic' and 'Low Energy Building Standard'
Green Building Council of Australia (GBCA) Green Star Buildings Credit 22 Energy Use
RIBA Plan of Work 2020
Air Tightness Testers and Measuring Australia (ATTMA)
Passive House Planning Package (PHPP)
International Living Futures Institute (ILFI) Zero Energy Certification and Living Building Challenge (LBC)
Climate Active Carbon Neutral Certification

Embodied Carbon Emissions

Definition

Challenge the status quo by considering the amount of carbon emissions generated by the production of a building over its whole life cycle. The primary aim is to minimise embodied carbon emissions and environmental impact through design, construction and operational practices across the following areas:

1. Low embodied carbon materials
2. Use resources for as long as possible to maximise value; repair, recycle or remanufacture at end of life cycle (circular economy)
3. Lifespan of the development ('long life, loose fit')
4. Transparent environmental impacts of materials
5. Carbon offsetting

Targets

Baseline

1. All projects >$1M undertake a Life Cycle Analysis calculation using the European Standard method (EN 15978) to evaluate the environmental consequences of a building across its entire life and to identify key opportunities for reducing embodied carbon.
2. Demonstrate >5% of materials by value to have independently audited Environmental Product Declarations (EPDs) conforming to International Standard/European Standards (ISO14025 / EN15804). Audit to cover the whole life of materials (cradle-to-grave).
3. Divert at least 80% of construction and demolition waste from landfill. Includes every item leaving the site over the duration of the construction period including food and drink packaging, paper, tape.
4. Reduce embodied carbon emissions by 20% compared to a Business As Usual base case building as determined by Life Cycle Analysis consultant.

Stretch

1. Reduce embodied carbon by at least 35-50% compared to a Business As Usual base case building as determined by Life Cycle Analysis consultant targeting:
    a. Residential : $750kgCO_2e/m^2$
    b. Non-residential: $1000kgCO_2e/m^2$
2. Achieve carbon neutrality by offsetting the remaining amount of carbon through a certified scheme.
3. Divert at least 95% of construction and demolition waste from landfill. Includes every item leaving the site over the duration of the construction period including food and drink packaging, paper, barrier tape.

Baseline strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Potential to retrofit existing buildings.
- Reuse existing materials/structures on site (if applicable).
- Identify and select the most relevant third party benchmark system for the project and prepare high-level summary of requirements.

RIBA 2 - Concept Design

- Life Cycle Analysis consultant to carry out high-level Life Cycle Analysis preliminary study;this could be on a portion of the building or a particular material that is representative of the wider project.
- Reuse and repurposing existing buildings and materials where possible.
- Investigate alternative structural options to minimise impact of high-embodied carbon materials, particularly concrete and steel.
- Investigate the potential to integrate prefabricated construction methodologies that are proven to reduce waste.

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Life Cycle Analysis consultant to undertake full Life Cycle Analysis evaluation.
- Consider design for disassembly, prefabrication and other construction methodologies that reduce construction waste and increase end-of-life reuse and repurposing.
- Incorporate Forest Stewardship Council (FSC) certified timbers and Environmental Product Declarations (EPD) requirement into tender specifications.
- Update Life Cycle Analysis assessment, review against project targets and make adjustments as required.
- Prepare Principal Project Requirements to confirm targets for Head Contractor for them to incorporate into an Environmental Management Plan.

RIBA 5 and 6 - Construction and Handover

- Implement an Environmental Management Plan (EMP) (as prepared by Head Contractor, Civil/ Environmental Engineer and Ecologist) that requires the building contractor to divert at least 80% of construction and demolition waste from landfill.
- Final as-built assessment and reporting to verify targets are met.
- For cold shell tenancies, provide Tenant Fitout Guidelines consistent with targets.
- Prior to construction review tenant fitout to ensure alignment with targets.

RIBA 7 - Asset Management

- Undertake inspections to ensure Tenant Fitout Guidelines are adhered and targets are met.

Stretch Strategies

(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Assess material specifications and omit materials on the Living Building Challenge Material Petal Certification Red List.

RIBA Stages 3 and 4 – Detailed Design and Tender Documentation

- Audit final material specifications and remove any on the Living Building Challenge Material Petal Certification Red List working with ESD consultant if required.
- Prepare Principal Project Requirements to confirm targets for Head Contractor for them to incorporate into an Environmental Management Plan.

RIBA 5 and 6 - Construction and Handover

- Implement an Environmental Management Plan (EMP) (as prepared by Head Contractor, Civil/ Environmental Engineer and Ecologist) that requires the building contractor to divert at least 95% of construction and demolition waste from landfill.

RIBA 7 - Asset Management

- Tenancy Charter to include mandatory participation in a Waste Management Plan. This may involve private collection companies for particular waste streams (e.g. cardboard, glass, soft plastics, food waste) to be collected and processed offsite.

Supporting Information

Metric
- Embodied: kgCO_2e/over 60-year lifecycle
- Sustainable materials: Environmental Product Declarations (EPDs)
- Waste: % diversion of materials from landfill
- Construction: % reuse of existing building/materials on site

Current market ‘best practice’ benchmark
- Residential: None
- Non-residential: Green Star Life Cycle Assessment

Baseline Third party Quality Assurance / Benchmarking systems
- Third Party-verified Life Cycle Analysis calculation according to European Standard (EN15978) with reference to Green Star credit 19A.1: Comparative Life Cycle Assessment
- Minimum 5 Star Green Star Buildings Rating (certified)

Stretch Third party Quality Assurance / Benchmarking systems

- 6 Star Green Star Buildings Rating (certified)*
- Zero Carbon Certification (ILFI)*
- Living Building Challenge – Petal Certification (to include Materials Petal)*

Design teams are encouraged to select at least one Quality Assurance or Benchmarking System. Systems marked with an * are complimentary so only pursue one of these, never multiple.

References

Green Building Council of Australia (GBCA) Green Star Buildings – 21 Upfront Carbon Emissions Net Zero Pathway
International Living Futures Institute (ILFI) Living Building Challenge (LBC) – Materials Petal
RIBA 2030 Climate Challenge
RIBA Plan of Work 2020
Living Building Challenge Red List: This refers to the comprehensive Living Futures Institute database that lists prevalent materials, chemicals, and elements in the building industry known to pose serious human health risks and to endanger the wider ecosystem.

Water

Definition

Design water systems that integrate with sites and buildings to maximise environmental benefits and conserve water. The aim is to create water cycles that are integrated across buildings and landscapes to reduce potable water demand and benefit natural ecosystems. The objective is to reduce, reuse and optimise water use through hydraulic and civil infrastructure related to:

1. Potable water
2. Rainwater
3. Stormwater and run-off
4. Natural waterways, catchments and ecologies

Targets

Baseline

1. Reduce potable water consumption by at least 40% across development compared to Business As Usual reference building (as determined by ESD consultant).
2. No potable water to be used for irrigation when recycled water, stormwater, greywater is available in a tank for re-use.
3. Major non-drinking water uses on construction site (e.g. wash down, dust suppression etc) to be supplied from recycled sources where possible.
4. Concrete mix to utilise at least 50% reclaimed or recycled water.
5. Demonstrate a post-development peak storm water discharge that is less than the pre-development peak stormwater discharge from the site.
6. Implement strategies outlined in Water Sensitive Urban Design (WSUD) Engineering procedures (CSIRO 2005) such as rainwater tanks, rain gardens, stormwater detention systems, sediment ponds, wetlands and swales.
7. Demonstrate that run-off discharge water meets the following reduction targets:
    - Suspended solids: 85 %
    - Phosphorus: 65%
    - Nitrogen: 45%
    - Gross pollutants: 90%

Stretch

Buildings

1. Reduce potable water demand by at least 60% compared to Business As Usual reference building (as determined by ESD consultant).
2. Zero potable water to be used for non-potable uses.
3. Demonstrate a post-development peak storm water discharge that is at least 20% less than the pre-development peak stormwater discharge from the site.
4. Demonstrate that run-off discharge water meets the following reduction targets:
    - Suspended solids: 90%
    - Phosphorus: 70%
    - Nitrogen: 60%
    - Gross pollutants: 95%

Baseline Strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Opportunities to increase and enhance integrated water management across the site.
- Assess potential risks associated with stormwater management, flooding and other climate stress scenarios that require a response (e.g. flooding, retention and detention strategies).
- Identify and select the most relevant third party benchmark system for the project and prepare high-level summary of requirements.

RIBA 2 - Concept Design

- Explore integration of Water Sensitive Urban Design (WSUD) strategies such as rainwater tanks, rain gardens, stormwater detention systems, sediment ponds, wetlands and swales, landscaping and ecological systems; integrate drought-tolerant plant species and irrigations systems to minimise evaporative losses for green areas and enhance biodiversity.
- Undertake MUSIC and STORM modelling to define permeability extent and rainwater tank sizes.
- Develop strategies to reduce potable water use such as rainwater capture or cooling systems condensate collection and reuse for toilet flushing.
- Integrate on-site strategies for stormwater management through STORM or MUSIC modelling, such as restraining or retaining water via detention pond. Incorporate WSUD landscape features such as rain gardens, swales or retention ponds wherever possible.
- Calculate annual load and pollutant reductions to achieve environmental protection adopting standard civil engineering initiatives (MUSIC modelling).
- Carry out a holistic water balance spreadsheet calculation to develop potable water saving strategies.
- Implement WSUD design strategies to minimise the risk of pollutants or toxicants entering the stormwater system.
- Design for future climate scenarios. Develop a Climate Change Risk Assessment that identifies key threats to a development's resilience such as increased frequency of drought or extreme rainfall

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Specify fixtures, fittings and equipment that align with potable water reduction targets (Water Efficiency Labelling and Standards, WELS).
- Design and specify an integrated water management strategy including permeable surfaces, WSUD landscape features, tanks and pumps etc.

RIBA 5 and 6 - Construction and Handover

- Ensure targets are met during operation by providing a Building Handbook and induction for Building Manager and tenants that describes water management systems and how to use them.

RIBA 7 - Asset Management

- Monitor water consumption to assess performance against targets. Enact behaviour change method with tenants with high water consumption.
- Tune systems to address any operational inefficiency that may hinder targets being met.

Stretch Strategies
(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Incorporate greywater treatment and reuse for irrigation or other non-potable requirements
- Incorporate a separate pipe system for distribution of recycled water

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Integrate smart systems that are connected to the internet to manage stormwater such as Smart Tanks

RIBA 7 - Asset Management

- Monitor water consumption to assess performance against stretch targets. Enact behaviour change method with tenants with high water consumption.
- Tune systems to address any operational inefficiency that may hinder stretch targets being met.

Supporting Information

Metric

- Potable Water demand: ML/m^2yr
- Pollutants: % reduction on baseline

Current market 'best practice' benchmark

- Residential: STORM / MUSIC
- Commercial: NABERS / Green Star 5 Star

Baseline Third party Quality Assurance / Benchmarking systems

- Minimum 5 Star Green Star Buildings Rating (certified)*

Stretch Third party Quality Assurance / Benchmarking systems

- 6 Star Green Star Buildings Rating (certified)*
- Living building Challenge – Petal Certification (to include Water Petal) *

Design teams are encouraged to select at least one Quality Assurance or Benchmarking System. Systems marked with an * are complimentary so only pursue one of these, never multiple.

References

NABERS
Green Building Council of Australia (GBCA) Green Star Buildings – 25 Water Use
CSIRO Best Practice Environmental Management Guidelines (BPEM)
RIBA Plan of Work 2020
STORM / MUSIC modelling (statutory compliance requirements for rainwater capture and stormwater management)

Travel Emissions

Definition

Extend emission reduction potential beyond the site boundaries by providing all occupants with low carbon emission travel options. The aim is to incorporate a diverse range of environmentally responsible and healthy options for occupants and visitors travelling to and from a site/building, with a particular focus on:

1. Reducing travel carbon emissions
2. Enhancing health and wellbeing
3. Fostering community cohesion and inclusivity

Targets

Baseline

1. Minimum 70 point Walk Score™ for developments in urban contexts.
2. Minimum of five key amenities required on a day-to-day basis located within 400 metres of the site.
3. Reduction in private vehicle use and associated emissions by 40% compared to Business As Usual base case as determined by a Transport Consultant.
4. Reduction in Vehicle Kilometres Travelled (VKT) by 20% compared to Business As Usual base case as determined by a Transport Consultant.

Stretch

1. Minimum 90 point Walk Score™ for developments in urban contexts.
2. Minimum 70 point Transit Score™
3. Minimum 70 point Bike Score™
4. Reduction in private vehicle use and associated emissions by 50% compared to Business As Usual base case as determined by a Transport Consultant.
5. Reduction in Vehicle Kilometres Travelled (VKT) by 50% compared to Business As Usual base case as determined by a Transport Consultant
6. Minimum of 10 key amenities located within 400m

Baseline Strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Site proximity and connection to public transport, cycling and walking routes to enable reduced reliance on personal vehicle use.
- Preliminary calculation of a Walk Score™ to major amenities and transport.

- Preliminary calculation of Bike Score™ and Transit Score™.
- If Walk Score™ baseline target is not achieved, assess the regulatory processes associated with having public transit networks serve the development.
- Assess opportunities to leverage surrounding electric vehicle charging infrastructure.
- Identify and select the most relevant third party benchmark system for the project and prepare high-level summary of requirements.

RIBA 2 - Concept Design

- Engage a sustainable Transport Planner early in the design process and develop a Green Transport Plan.
- Use Green Star Buildings Movement and Place Calculator.
- Incorporate urban design strategies to encourage walkability by prioritising pedestrian networks and limiting vehicle speeds of 10km/hr across site.
- Provide safe and secure bicycle parking (extent defined in the Green Transport Plan).
- Provide End of Trip Facilities at non-Residential sites including showers and lockers (extent defined in the Green Transport Plan).
- Within car parks and loading bays provide the base infrastructure so that electric charging stations can be installed in the future.
- Identify and integrate with surrounding roads, bike and pedestrian paths that will help achieve targets.
- Identify and problem solve urban impediments that may impact targets being met.

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Ensure all infrastructure is coordinated to enable future electric vehicle charging potential.

RIBA 5 and 6 - Construction and Handover

- Provide a Tenant Handbook to describe operation and management of low emission travel infrastructure (electric vehicle/bike charging, share vehicle/bikes, end of trip facilities).

RIBA 7 - Asset Management

- Implement sustainable travel policies and initiatives to encourage reduced private combustion vehicle use
- Implement a car and bike sharing scheme for all occupants

Stretch Strategies
(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Provide access to electric vehicle charging for all parked vehicles.
- Provide electric bike charging access for all bicycle parking.

- Provide end of trip facilities including showers and lockers, that exceed the extent recommended in the Green Travel Plan by 20%.

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Ensure all infrastructure is coordinated to enable electric vehicles and bikes for all the private transport accommodated at a site.

Supporting Information

Metric
- Walkability score
- Per capita provision of facilities (Bicycle parks / No. occupants)
- Vehicle Kilometres Travelled (VKT) reduction
- Post Occupancy Survey: occupant feedback

Current market 'best practice' benchmark
- Residential: Built Environment Sustainability Scorecard (BESS) / Better apartments design policies for sustainable transport (Bikes)
- Non-residential: Green Star Local planning policies for sustainable transport (Bikes)

Baseline Third party Quality Assurance / Benchmarking systems
- 5 Star Green Star Buildings Rating (certified)*
- Fitwell Workspace Scorecard*

Stretch Third party Quality Assurance / Benchmarking systems
- 6 Star Green Star Buildings Rating (certified)*
- Fitwel Workspace Scorecard*
- WELL Building Standard*

Design teams are encouraged to select at least one Quality Assurance or Benchmarking System. Systems marked with an * are complimentary so only pursue one of these, never multiple.

References

Fitwel Workspace Scorecard Criteria 1 – Transit and location requirements
WELL v2 Building Standard – Movement – Planning and Site Selection
Green Building Council of Australia (GBCA) Green Star Buildings – Credit 27 Movement and Place
Walk Score™
Transit Score™
Bike Score™

Natural Ecologies

Definition

Restore, protect and enhance the ecological value of a site and its surroundings in relation to natural ecosystems, biodiversity, landscapes, waterways and native species. The key aims are to:

1. Limit negative impacts on nature
2. Enhance biodiversity
3. Connect natural ecosystems
4. Protection and management of waterways
5. Integrate Indigenous knowledge

Targets

Baseline

1. Appoint an ecologist, researcher, landscape architect to develop a biodiversity assessment to:
    - understand the existing natural ecologies on and around the site
    - set natural ecologies targets in response
    - incorporate findings into a Biodiversity Management Plan to ensure the protection, management of the natural ecologies and mitigate impact throughout all development phases.
2. Retain and restore the site's water flows to levels before any development occurred on the site, i.e. the site's natural hydrology prior to any development.
3. Retain and restore native flora and fauna species to achieve no loss of biodiversity and meet the following:
    - >15% of site area dedicated to landscaping (horizontal or vertical)
    - >60% of vegetation must be indigenous native species
    - No invasive species to be included on site
4. Maintain the extent of landscaped areas approved at completion of RIBA 2 - Concept Design throughout subsequent phases.

Stretch

(Additional to Baseline requirements)

1. Appoint an Ecologist to develop a biodiversity assessment to understand the existing natural ecologies on and around the site and achieve no net loss of biodiversity.
2. Enhance site's natural ecology to meet the following:
    - >30% of site area dedicated to landscaping
    - >80% of vegetation must be indigenous native species
    - No invasive species to be included on site
    - Preserve, restore and/or support vulnerable ecosystems including endangered wildlife and/or endangered plant species that are native to the region
3. Invest in at least one initiative that restores biodiversity beyond site boundaries

Baseline Strategies

RIBA Stage 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Consideration of sites where the potential for restoring or increasing ecological value can be maximised such as selecting a brownfield site (damaged ecological site) over a greenfield site (naturally evolving, undamaged site).
- Avoid selecting sites with high ecological value for development such as sites classified as 'High National Importance' under the Environmental Protection and Biodiversity Conservation Act (1999)
- Identify opportunities to integrate precinct- or site-wide landscape design with larger-scale civil stormwater or natural waterways infrastructure, also known as 'Blue-Green' strategy.
- Identify and select the most relevant third party benchmark system for the project and prepare high-level summary of requirements.

RIBA 2 - Concept Design

- Appoint an Ecologist to undertake site survey, establish site's ecological value and set appropriate site-specific targets.
- Identify key opportunities to restore and improve biodiversity, habitat and ecological value, and undertake relevant risk assessment of any non-native species already at the site.
- Consult local stakeholders including local environmental groups and Aboriginal or Torres Strait Islander groups. Engage with traditional custodians to integrate specific Indigenous ecological knowledge and philosophies.
- Integrate design strategies that prevent negative impacts beyond the site boundaries, including light and noise pollution.
- Conduct workshops with the design team, consultants, local environmental groups and traditional custodian to ensure a holistic design approach.

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Incorporate all strategies for biodiversity and ecology enhancement into tender documentation.

RIBA 5 and 6 - Construction and Handover

- Contractors to implement the Environment Management Plan that responds to the Biodiversity Management Plan.
- Undertake periodic checks to ensure targets are met and Biodiversity Management Plan is adhered to.
- Provide a Tenant Handbook that describes the ecological value of the site, how the planted spaces are maintained and how occupants can contribute.

RIBA 7 - Asset Management

- Facilitate ongoing environmental custodianship on the site through public programs and occupant education
- Integrate Biodiversity Management Plan requirements into Tenant Charter
- Conduct Post-Occupancy Evaluation assessments to report on success/challenge of meeting biodiversity goals

Stretch Strategies
(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Engage an Ecologist to undertake biodiversity review and set science-based strategies to meet no net loss target.

RIBA 5 and 6 - Construction and Handover

- Incorporate key strategies from the Biodiversity Management Plan in the Tenant Charter particularly for management and long-term custodianship of planted spaces

RIBA Stage 7 – Post-Occupancy

- Purchase biodiversity offsets, invest in land restoration or similar to meet 'No Net Loss' target

Supporting Information

Metric
- Natural ecology: % increase in native species
- Vegetation coverage: % of site GFA

Current market 'best practice' benchmark
- City of Melbourne Green Factor tool
- CSIRO Best-Practice Environmental Management Guidelines (BPEM)

Third party Quality Assurance / Benchmarking systems
- Minimum 5 Star Green Star Buildings Rating (certified)*

Third party Quality Assurance / Benchmarking systems
- Minimum 6 Star Green Star Buildings Rating (certified)*

Design teams are encouraged to select at least one Quality Assurance or Benchmarking System. Systems marked with an * are complimentary so only pursue one of these, never multiple.

References

Green Star Buildings – Nature Credit
RIBA Plan of Work 2020
RIBA 2030 Climate Challenge
CSIRO Best-Practice Environmental Management Guidelines (BPEM)
Caring for Country

Human Health

Definition

Deliver developments that measurably improve the physical and mental health and wellbeing of occupants.The aim is to support and promote:

Physical health through:

1. Thermal comfort
2. Indoor air quality
3. Daylighting and visual comfort
4. Acoustic comfort

Mental health through:

1. Spatial design
2. Biophilic design and connection to nature
3. Social connection

Targets

Baseline

All Buildings

1. Indoor air quality:
    a. <800ppm CO^2 Levels
2. Daylight >95% units to meet:
    a. spatial daylight autonomy of 160lux for 40% floor area, for 80% nominated hours
3. Engage acoustic engineer to set appropriate decibel targets
4. Indoor air quality
    a. <700ppm CO^2 Levels
    b. Formaldehyde <0.1 mg/m^3
    c. Total Volatile Organic Compound (VOC) <0.3mg/m^3

Residential

1. Daylight >80% units to meet
    a. Spatial daylight autonomy of 160lux for 60% combined floor area (living spaces and bedrooms) for 80% nominated hours (with no less than 20% of each space receiving these daylight levels)
2. Passive thermal comfort for summertime hours of overheating:
    a. <3% daytime overheating hours >28C° in living spaces
    b. <1% night-time overheating hours >26C° in bedrooms
    (adapted from CIBSE Technical Memorandum TM59: 2017)

Stretch

Residential

1. Daylight >80% units to meet
    a. Spatial daylight autonomy of 160lux for 60% combined floor area (living spaces and bedrooms) for 80% nominated hours (with no less than 20% of each space receiving these daylight levels)

Baseline Strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Optimised occupant health and wellbeing, including passive operation, comfort, connection to nature, air quality management, daylight access and acoustic control.
- Identify and select the most relevant third party benchmark system for the project and prepare high-level summary of requirements.

RIBA 2 - Concept Design

- Confirm targets based on building use, occupancy patterns, occupant requirements and climatic conditions, including evaluation of future climate change risk.
- ESD consultant to undertake initial daylight modelling to align with targets. Also consider the daylighting implications of future development on neighbouring sites
- Undertake initial passive thermal comfort modelling to evaluate risk of overheating.
- Incorporate planning strategies to encourage movement such as prioritising circulation via stairs rather than lifts.
- Engage an acoustic consultant to provide strategy for addressing noise and acoustic privacy.
- Choose natural materials for interior surfaces.

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Update daylight modelling to reflect design development to confirm targets are met.
- Undertake detailed review of natural ventilation including size of window openings.
- Specify materials and finishes that meet VOC and formaldehyde targets.
- Incorporate air quality monitoring for indoor CO_2 levels, VOCs and formaldehyde concentrations.

RIBA 5 and 6 - Construction and Handover

- Commissioning and tuning of heating, ventilation and air conditioning systems to meet indoor air quality targets.

RIBA 7 - Asset Management

- Provide a Tenant Handbook, induction and training to ensure occupants understand systems and can operate them to maximise health outcomes.
- Implement a Tenancy Charter to specify toxin-free cleaning practices.
- Establish a program for maintaining and cleaning heating, ventilation and air conditioning systems, including filters and heat exchangers.
- Gather occupant feedback through post-occupancy evaluation surveys to review occupant satisfaction; use this to inform ongoing systems tuning.

Stretch Strategies

(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Integrate the following elements into design to increase physical and mental wellbeing of occupants:
    - Provide outdoor fitness equipment, walking paths or recreation facilities on-site
    - Provide outdoor space for on-site communal vegetable or fruit garden
    - Provide a dedicated breastfeeding room.
    - Design interiors with biophilic connections, including plants, water and landscape views
    - Increase connection to place by selecting local materials and design elements
    - Provide multi-purpose room that can be used for wellness activities or on-site exercise
    - Provide a quiet room/space for occupants' private use/focused work
    - Include public hand basins
    - Provide accessible filtered water
    - Include touch-free controls and sensors on fixtures, fittings and access points to minimise infection spread

Supporting Information

Metric

- Air Quality: CO_2ppm (air quality monitoring)
- Passive Thermal Comfort: % hrs of overheating per year
- Natural light: % Daylight Factor or Daylight Autonomy
- Biophilic elements: Area (m^2) of living architecture/landscape or number of plants

Current market 'best practice' benchmark

- Residential: Greater Melbourne councils BESS scorecard requirements
- Non-residential: Green Star 5 Star equivalent performance

Baseline third party Quality Assurance / Benchmarking systems

Minimum 5 Star Green Star Buildings Rating (certified)*
WELL Building Standard – Selected Credits (IWBI)*

Stretch third party Quality Assurance / Benchmarking systems

- Passive House Classic Certified*
- WELL Building Standard - Certified (IWBI)*
- Living Building Challenge (ILFI) – Petal Certification (Health + Happiness petal)*

Design teams are encouraged to select at least one Quality Assurance or Benchmarking System. Systems marked with an * are complimentary so only pursue one of these, never multiple.

References

Green Building Council of Australia (GBCA) Green Star Buildings - Healthy Category
Fitwel – Criteria 7
WELL v2 Building Standard
RIBA Plan of Work 2020
CIBSE TM59:2017

Social Value

Definition

Improve and strengthen communities and neighbourhoods in and around a site, acknowledging the impact of development on existing and new communities. The aim is to encourage inclusive and resilient neighbourhoods with developments that add value to a site and its surroundings across the following areas:

1. Supporting the local economy
2. Affordability, inclusivity, and social equity
3. Diversity
4. Art and culture
5. Indigenous inclusion
6. Fair trade

Targets

Baseline

1. Implement Molonglo's In Solidarity Plan at all sites.
2. Implement Molonglo's Public Participation Plan at all sites.
3. Undertake Adaptation and Resilience Risk Assessment and associated strategies to address future climate, social economic and environmental stresses. (See glossary for detail.)
4. Provide generous, planted communal space:
    a. >5% GFA (all buildings except residential)
    b. >2.5m^2/ dwelling (residential with mixed-use)
5. Social Procurement Strategy:
    a. >2% of the construction budget directed towards employment opportunities for disadvantaged or under-represented groups
6. >10% commercial tenancies subsidised at 50% below market rate
7. 1% construction budget dedicated to public art or community spaces
8. Provide diversity of building uses across the following categories accommodation, art and culture, retail, health and wellbeing, social enterprise or not-for-profit, community service, food and drink, manufacturing, production or craft, education of learning, entertainment or recreation, workspaces:
    a. >10,000m^2 NLA include at least ten use categories
    b. <10,000 m^2 NLA include at least four use categories
    c. <500m^2 NLA not relevant
9. Post-Occupancy Evaluation process to be carried for all buildings as per RIBA Social Value Toolkit for Architecture

Stretch

1. Social Procurement strategy
    a. >4% of the construction budget is directed towards employment opportunities for disadvantaged or under-represented groups

    b. >20% suppliers, tradespeople, products and artists (public art) to be local, supporting the local economy
2. Provide generous communal space
    a. >15% GFA (all buildings except residential)
    b. >3.5m^2/ dwelling (residential with mixed-use)
3. Increase housing equality by providing 10% of housing units at affordable sales or rental rates as per industry accepted housing affordability definitions with the inclusion of a resale cap in the sales contract.
4. For multi-building residential developments include a portion of build-to-rent housing to accommodate people who are unable to own a dwelling at any price.
5. For multi-building residential developments explore/initiate a partnership with a community housing provider for a portion of the dwellings
6. >15% commercial tenancies subsidised at 50% below market rate with requirement that spaces need to be multi-functional to cater for out of trading hours community needs
7. >2% construction budget dedicated to public art and community spaces
8. >20% existing tenants to be maintained on site
9. >20% tenancies to be leased to local businesses
10. >10% tenancies to be leased to start-up/new businesses
11. 25% of dwellings leased/sold to neighbourhood's existing residents

Baseline Strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Identify vulnerable and displaced groups
- Potential to create meaningful social impact through the (re)development of a site
- Identify elements of the site that can celebrate history, culture or local identities

RIBA 2 - Concept Design

- Implement a site-specific Public Participation Plan and engage with a site's existing and new communities to understand requirements and to facilitate inclusive design through early engagement with target groups
- Consult people with a range of non-normative body minds to understand requirements and determine creative opportunities for improved inclusion
- Assess opportunities from Molonglo's In Solidarity Plan and consult Indigenous community early in the design process
- Implement strategies developed in response to the Adaptation and Resilience Assessment

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Convert opportunities and insights from Molonglo's In Solidarity Plan and Public Participation Plan process into actionable design strategies
- Facilitate ongoing consultation and engagement with community and future users of the project using strategies from the RIBA Social Value Toolkit.

RIBA 5 and 6 - Construction and Handover

- Building contractor to implement baseline targets for disadvantaged employment opportunities and local suppliers

- Tenancy Charter to encourage tenants to nominate their spaces for community use outside of trading hours

RIBA 7 - Asset Management

- Facilitate and implement Post-Occupation Evaluation strategies as outlined in the RIBA Social Value Toolkit for Architecture

Stretch Strategies
(Additional to Baseline requirements)

RIBA 2 - Concept Design

- Incorporate stretch housing affordability and commercial tenant subsidies into development feasibility from outset
- Identity suitable community housing provider and initiate discussions
- Incorporate Build-to-Rent housing model into development strategy
- Commence discussions with existing tenants to incorporate their needs into design
- Prioritise use of local products. Requirement to present locally sourced or manufactured product alternatives as part of project specification.

RIBA 5 and 6 - Construction and Handover

- Building contractor to implement stretch targets for disadvantaged employment opportunities and local suppliers
- Tenancy Charter for tenants with subsidised rent to mandate inclusion of multi-purpose spaces for different community uses outside of regular trade hours.

Supporting Information

Metric
- Experience: Post-Occupancy Evaluation Surveys
- Financial support: % contract value or % rental subsidies
- Spatial allowance: m^2 per person/dwelling/NLA/GFA
- Local: within 250kms of site

Current market 'best practice' benchmark
- Residential : None
- Non-residential : None

References

RIBA Plan of Work 2020
Green Building Council of Australia (GBCA) Green Star Building – People and Places credits
RIBA Social Value Toolkit for Architecture
Molonglo Procurement Strategy
Molonglo Ethical Products and Services Supply List
Molonglo In Solidarity Proposal
Molonglo Public Participation Plan

Molonglo Good Tenancy Guide / Checklist

Whole Life Value

Definition

Whole Life Value calculates the function of the building in relation to cost over its entire life.The primary aim is to deliver a development with the highest environmental and social value for the most optimised and efficient cost across design, construction, operations over the whole lifetime of the building.The key aims are to:

1. Provide greater confidence in future operational and maintenance costs
2. Balance costs against impact
3. Focus decision-making on whole life cost at appropriate stages in the project
4. Increase long-term asset value

Targets

Baseline

- Optimise design building fabric and systems to minimise life cycle cost
- Align and integrate with targets outlined in:
    - Operational Carbon Emissions
    - Embodied Carbon Emissions

Baseline Strategies

RIBA 0 and 1 - Site Selection and Feasibility

As part of a feasibility framework, conduct a high-level assessment of site opportunities including:

- Redevelopment or retrofit potential considering the longevity of structure and adaptability over time

RIBA 2 – Concept Design

- Agree scope of life cycle cost assessment and undertake, comparing design options to determine the most effective choices to implement based on impact and cost.
- Consider ‘off-spreadsheet’ life cycle value including ecological, social, health and well-being benefits
- Establish site-specific strategies for future reconfiguration, adaptation and reuse of building to extend a development’s lifespan
- Engage Cost Consultant early in the design process to assess costs of design and systems to support decision making
- Undertake a rigorous cost/benefit analysis of all environmental initiatives and make selections based on whole-life time costs and impacts

RIBA 3 and 4 - Spatial Coordination and Technical Design

- Agree scope of component-level life cycle cost assessment
- Undertake component-level life cycle cost assessment of key systems including:
    - Envelope, including cladding, windows, or roofing
    - Services, including heat source, cooling source or controls
    - Finishes, including walls, floors or ceilings
    - External spaces including alternative hard landscaping, boundary protection
- Conduct design workshops to review life cycle cost assessment and incorporate recommended design measures

RIBA 5 and 6 - Construction and Handover

- Update life cycle cost assessment as necessary based on proposed design amendments and confirmed capital costs to review whole life performance
- Commit to post-occupancy monitoring of 3+ years and develop case studies that collate actual capital and operational cost performance data for selected initiatives. Implement learnings in future projects for greater life cycle cost efficiency.

Supporting Information

Metric
- Elemental Life Cycle Cost: $/m^2
- Net Present Value comparison: $ over 50 years

Current benchmark
- Residential: None
- Non-residential: None

References

BREEAM UK New Construction 2018
ISO 15686-5:2017 Buildings and constructed assets: Service life planning: Part 5: Life cycle costing
RIBA Plan of Work 2020

Glossary

General definitions

Feasibility Framework: An internally generated framework used to guide acquisition decisions through a process of quantifying and evaluating any opportunity or risk presented by a particular site. This framework should act as part of the RIBA Stage 0 reporting process and should cover a range of site acquisition considerations including sustainability potential.

Life Cycle Analysis (LCA): A method used to evaluate the environmental impact of a product through its life cycle encompassing extraction and processing of the raw materials, manufacturing, distribution, use, recycling, and final disposal.

Potable Water: Water that is safe to drink. Usually this is supplied through a mains water system, but can be created by capturing, recycling and treating other water sources, such as rainwater.

Non-potable water: Water that is not of drinking quality, such as untreated rainwater, greywater, stormwater or other untreated sources. Stormwater is rainwater that has fallen onto roads or roofs and often contains chemicals or pollutants. Non-potable water can only be used for irrigation or secondary uses such as toilet flushing.

Water Sensitive Urban Design (WSUD): WSUD is an approach to plan and design urban areas to make use of the valuable resource of water, and reduce the harm it causes to our rivers and creeks. Link to further information.

Indoor Environmental Quality (IEQ): A term relating to the quality of indoor spaces. Quality ratings include thermal comfort (temperature, relative humidity and air velocity), visual comfort (daylighting and artificial lighting), air quality ($C0^2$ levels, particulate levels, ventilation effectiveness, relative humidity), acoustic comfort, internal layout, cleanliness and maintenance.

Adaptation and Resilience Assessment: The high-level risk assessment of a site in relation to future climate, social, economic and environmental stresses.

Adaptation and Resilience Strategy: A high-level strategy to deal with risks associated with climate, social, economic and environmental stresses in order to protect the development asset and occupants.

Pre-Development levels: Levels before any development occurred on the site. In other words, development, compared to the natural hydrology or natural ecosystems of the site.

Blue-Green infrastructure: Precinct scale or site-wide design that integrates landscaping strategies with civil stormwater and natural waterways. Examples include green corridors across a site, which integrate native wetlands to filter and improve the quality of stormwater runoff from roads.

Caring for Country: *Participating in interrelated activities on Aboriginal lands and seas with the objective of promoting ecological, spiritual and human health. It is also a community driven movement towards long-term social, cultural, physical and sustainable economic development in rural and remote locations, simultaneously contributing to the conservation of globally valued environmental and cultural assets.* (Definition from Morrison J, Caring for country. In: Altman J, Hinkson M, editors. Coercive Reconciliation. Stabilise, Normalise, Exit Aboriginal Australia. Melbourne: Arena Publications Association, 2007: 249-261.)

Key Amenities: As defined by Green Star Buildings, this includes any amenity that is required on a day-to-day basis including:

– Grocery: e.g. convenience stores, supermarkets

– Health and wellbeing: e.g. dentist, doctor, psychologist

– Food and Beverage: e.g. cafes, restaurants, bars

– Retail: e.g. clothing, homeware, hardware, book, gift stores

– Bank Services: e.g. banks, credit unions

– Education and Childcare: e.g. primary, secondary, tertiary or childcare facilities

- Recreation: e.g. movie theatres, fitness centres, swimming pools
- Public facilities: e.g. libraries, local or state government service centres
- Outdoor facilities: e.g. playgrounds, parks

Reference case
Describe process for identifying existing or otherwise defining reference cases here?

Retention / detention systems: A form of stormwater management in which water is collected and managed in two ways: either restraining water onsite (via a dry detention pond) or retaining it (via a retention pond). These systems can be integrated with landscaping and can help enhance ecological value of a site and its surrounding area if managed correctly.

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Metrics

Air Permeability: A metric to measure the airtightness of a building as a rate of air infiltration through the area of building envelope, relative to the pressure, which will be specified in Pascals (e.g. 50 Pa simulates a strong wind). Metric is expressed as: $m^3/hr/m^2$@50Pa. Testing is part of a wider building performance verification process and will highlight the equality and energy efficiency of a building's envelope.

Air Change Rate: A metric to measure the air tightness of a building envelope as total air volume in cubic metres per square meter of floor space; the air pressure will also be specified in Pascals (e.g. 50 Pa which simulates a strong wind). Metric is expressed as: ACH@50 Pa. Testing is part of a wider building performance verification process for the construction quality and energy efficiency of a building's envelope.

Walk Score™: An online database that maps key amenities around a specific location and provides a score for walkability. This metric is used in several health and wellbeing standards including WELL building standard and Fitwel. Metric is expressed as a point system from 0 (worst) to 100 (best). Link to further information

Elemental Life Cycle Cost: Provides an indication of future replacement costs over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years). The typical metric is $\$/m^2$. It generally includes service life, maintenance and operation cost estimates and forms part of an Elemental Life Cycle Cost Plan (LCC).

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Rating Systems and Benchmarking

Soft Landings: A strategy/methodology for projects that is designed to make an easy transition from the construction to occupation phases, with an overriding aim to realise optimal operational performance. Link to further information.

Passive House Standard (PH): An internationally acclaimed building performance standard that rigorously reduces active operational carbon by capping heating, cooling and primary energy demands. It is also a health and wellbeing standard, focused on increasing thermal autonomy, resilience and indoor environmental quality to support the health of all occupants.

Administered by the Passivhaus Institute Darmstadt, the PH standard is a third-party certification system that acts as a quality control mechanism from design to delivery onsite. There are several Passive House 'certification classes' that include:

– Low energy certification – for new buildings (slightly higher energy caps)

– Classic certification – for new buildings

– EnerPHit – for retrofit projects

Passive House Planning Package (PHPP): A software package that acts as both a design and compliance tool for all passive house certification classes. Link to further information

Living Building Challenge: A building standard that can be applied to any building type. Its goal is to incorporate regenerative design solutions that improve the local environment rather than simply reduce harm. Link to further information. There are 7 'petals' that projects can be certified against:

– Materials Petal – Safe and sustainable materials (includes a red list of banned materials)

– Beauty – design that uplifts the human spirit

– Health and Happiness – Optimize physical and psychological health and wellbeing

– Water – projects need to operate within a strict water balance

– Equity – supporting a just and equitable world

– Place – restoring healthy relationship with nature

WELL Standard: A performance-based system for measuring, certifying and monitoring features of the built environment that impact human health through air, water, nourishment, light, fitness, comfort and mind. Link to further information.

Fitwel Building Standard: An internationally recognised certification system committed to occupant health and wellbeing for buildings and precincts. The standard was established by the U.S. Centers for Disease Control (CDC) and Prevention and is now operated by the Center for Active Design. The Fitwel standard includes credits based on location, building access, outdoor spaces, vertical transport, inclusiveness, indoor environment, workplaces, shared spaces, water supply, food and emergency procedures. Link to further information

All targets