



EnviroDevelopment Standards

Version 2.0

Urban Development Institute of Australia (Queensland)

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EnviroDevelopment Technical Standards 2.0 Sponsor:



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The EnviroDevelopment Concept

EnviroDevelopment has been created to increase the uptake of sustainability in all aspects of development including residential, retail, commercial and industrial as well as mixed-use developments. Its purpose is to mainstream more sustainable development, beyond display projects. It is designed to harness the enthusiasm of industry, government and the community and to inspire higher achievement than would be achieved through regulation, whilst maintaining opportunities for flexibility and innovation.

Since the public launch of the system in October 2006, EnviroDevelopment has been successful in growing awareness of sustainable development amongst developers, associated professionals, government agencies, and consumers and provided recognition to exemplary projects.

EnviroDevelopment offers independent certification of the sustainability credentials of a development. Through this recognition and related rewards, EnviroDevelopment provides an incentive-based system designed to increase sustainability in developments via key partnerships, rewards and marketing. The EnviroDevelopment framework covers a broad spectrum of environmental and community sustainability issues relevant to development. Although there is no specific section dedicated to economics (which would complete the triple bottom line trilogy), economic impacts have been considered and integrated into the standards and will also be considered by developers on a case-by-case basis in their choice of environmental solutions.

EnviroDevelopment is separated into six key elements: ecosystems, waste, energy, materials, water and community. It also addresses issues of relevance right through the development chain, commencing from the conceptual stages of a development. This is important as addressing environmental issues at this early stage can offer better outcomes and more opportunities for reducing environmental impacts and improving environmental performance. If environmental issues are not considered at this time, only a limited array of initiatives may be able to be implemented (often limited to a building's design and construction) to reduce the overall environmental impact of the population.

The EnviroDevelopment standards have been designed to be flexible, to encourage innovation and to avoid any unintended negative outcomes that can sometimes result when standards or regulations are overly prescriptive. Hence, the EnviroDevelopment standards aim to recognise the performance of a development in achieving broad environmental goals, whilst facilitating the most appropriate or innovative method to be chosen for individual situations.

The EnviroDevelopment standards are set higher than standard practice and a development that achieves EnviroDevelopment recognition should therefore be one that signifies excellence and of which the industry and community can be proud. For EnviroDevelopment to maintain its integrity and credibility as a catalyst of change and recognisable brand, the standards set must hold up under rigorous scrutiny from a range of individuals and organisations including government, community-based organisations and the scientific community.

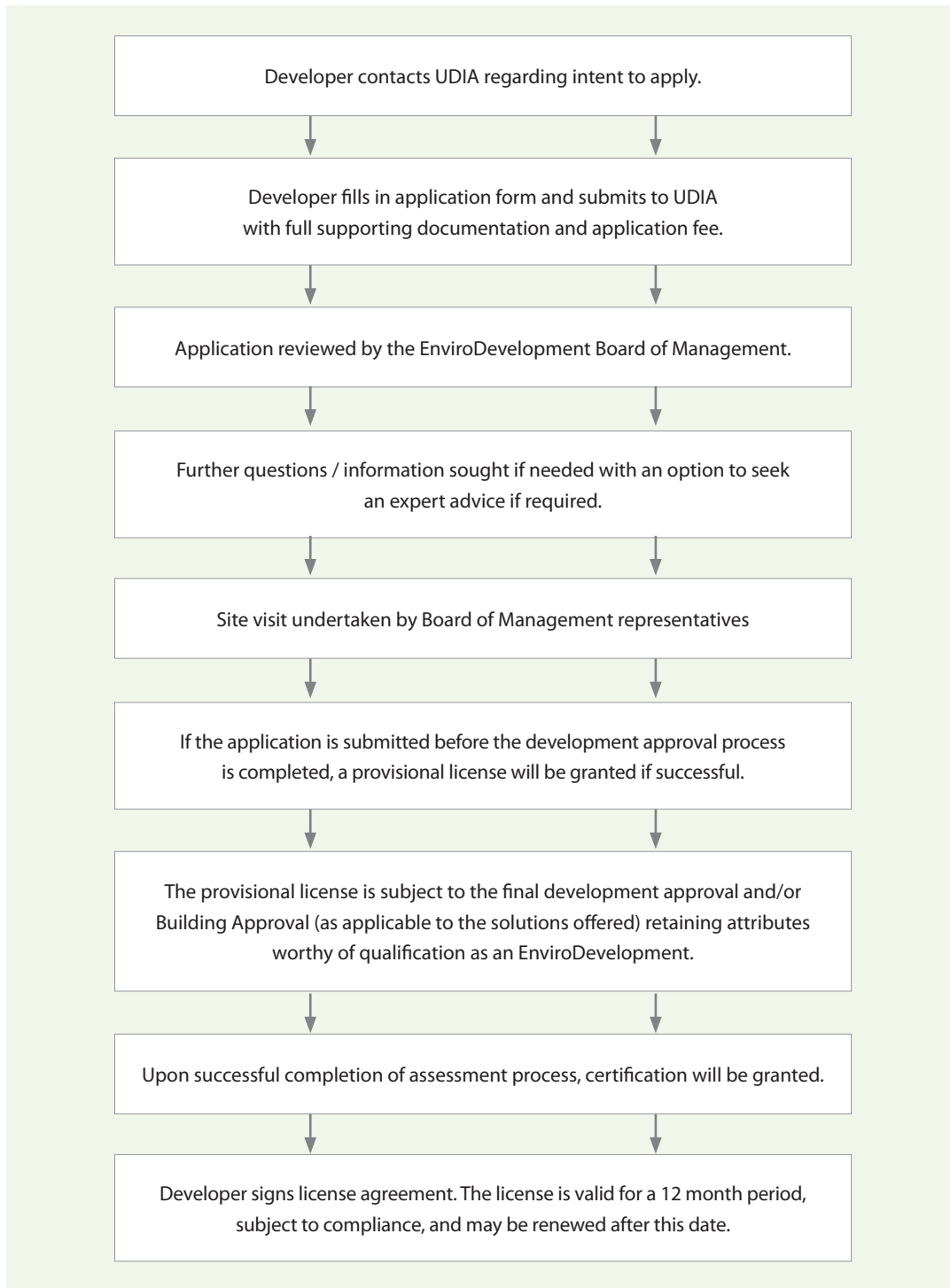
The level EnviroDevelopment is targeting is roughly such that the standards are set at a level only a restricted number of developments (e.g. conceptualise the top 10-20%) are currently achieving. However, this level would be within the grasp of a much larger number, irrespective of site or type of development, given sufficient encouragement and incentives.

Conversely, the standards are not set so high that they would be seen as too difficult or expensive to be worth aiming for. Such a situation would see EnviroDevelopment become irrelevant and have little positive impact on industry performance or consumer awareness.

EnviroDevelopment Certification Process Guidelines

The process for EnviroDevelopment certification is outlined below in Figure 1.

Figure 1



Certification Process and Submission Timing

In principle, a developer may apply for EnviroDevelopment certification as soon as they can demonstrate, with a high level of certainty that the development will reliably meet the EnviroDevelopment requirements. It is envisaged that the application for certification will generally be submitted at the same stage as the development application is lodged or as soon as evidence is available offering certainty of achievement of EnviroDevelopment standards. This is on the basis that much of the evidence required for EnviroDevelopment is compatible with the evidence required for a development assessment and that this is likely to be the timing offering the greatest benefits of EnviroDevelopment certification to both developers and government.

Submission around the time of a development application should allow preliminary certification of qualifying developments, for use in development assessment discussions. However, the timeline for EnviroDevelopment certification may vary depending on the EnviroDevelopment solutions chosen for a particular development, as some solutions may be locked in earlier than others. For example, a developer may have legal evidence protecting an area of vegetation earlier than they might have a covenant or body corporate design guidelines locked in place to ensure the sustainability features of buildings.

Where a developer has obtained preliminary EnviroDevelopment certification (subject to the final development approval) they must submit appropriate documentation after the development approval, highlighting any changes made since the preliminary approval.

An application for EnviroDevelopment certification should include a completed application form, a signed statutory declaration and all other documentation as required to clearly demonstrate reliable achievement and future delivery of initiatives to satisfy the EnviroDevelopment standards.

EnviroDevelopment applications will be considered by the EnviroDevelopment Board of Management, with advice and input from appropriately qualified experts as necessary. EnviroDevelopment certification requires the endorsement of the EnviroDevelopment Board of Management. Every effort will be made to ensure that EnviroDevelopment applications will be processed within six weeks of receipt of all documentation and supporting information.

EnviroDevelopment certification will be valid for a period of 12 months from the date of approval by the Board of Management. However, the EnviroDevelopment certification will only be granted after the licencing agreement has been signed by both parties and all fees have been paid.

While the most appropriate time to submit an EnviroDevelopment application is usually around the time of the release of the first phase of the development or commencement of leasing, applicants are able to delay the commencement of the term of their EnviroDevelopment license by up to six months.

EnviroDevelopment Renewal

To renew EnviroDevelopment certification, the developer will be required to submit, four weeks before the renewal date: a completed renewal form; signed statement and all appropriate documentation detailing any changes in the development that may affect the basis upon which the EnviroDevelopment licence was granted from the time of the initial certification to the end of the period of renewal. A renewal fee will also be payable.

EnviroDevelopment Compliance

EnviroDevelopment certified projects may be subject to random site checks. Where appropriate, and at the EnviroDevelopment Board of Management's discretion, further information may be requested to ensure the integrity of EnviroDevelopment certification and the continued compliance of certified developments.

Developers of EnviroDevelopment certified projects must advise UDIA within ten working days of any changes made, or proposed to be made, to the proposed or existing development which may effect eligibility for EnviroDevelopment certification.

If the EnviroDevelopment Board of Management has concerns regarding a breach of the basis for certification of a development or the licencing agreement, UDIA will advise the developer of these concerns and request evidence of compliance within two weeks of the notice.

EnviroDevelopment certification may be revoked if the EnviroDevelopment Board of Management is not satisfied that the certified EnviroDevelopment is meeting the requirements and the spirit of EnviroDevelopment. In the instance of non-conformance, the licence will be revoked and the application fee will not be refunded. There may also be cause to make public statements about such non-compliance to protect the broader integrity of EnviroDevelopment.

The developer may be declared by the Board of Management to be ineligible for EnviroDevelopment certification for any project for a period of two years if found to breach the agreement or provide incorrect or false statements. Similarly, any third parties or consultants found to be providing substantially incorrect or false statements or evidence for the purpose of EnviroDevelopment certification may be declared by the EnviroDevelopment Board of Management to be ineligible to provide evidence for EnviroDevelopment certification for a period of two years.

Such actions by any party may be found to constitute a breach of the UDIA (Qld) Code of Ethics and result in loss of UDIA (Qld) Membership.

The use of the EnviroDevelopment logo system will be protected and action will be taken against persons or organisations found to be fraudulently representing a development, or a component of a development, as an EnviroDevelopment, or fraudulently representing any other product as EnviroDevelopment certified or endorsed.

EnviroDevelopment certification should not be seen as an alternative to compliance with local, state or federal laws. Developments (including EnviroDevelopments) must fulfil their regulatory requirements under the relevant legislation and planning schemes.

EnviroDevelopment Standards Review

The EnviroDevelopment standards will be reviewed periodically as required to ensure that the criteria are appropriate in light of new technology, regulation or standard practices. Where EnviroDevelopment applications are received which demonstrate exceptional environmental performance, equivalent to or exceeding the standards required for certification but which fail to comply with the existing detail of the EnviroDevelopment criteria, in exceptional circumstances and at the discretion of the EnviroDevelopment Board of Management, this may trigger a review of the EnviroDevelopment standards and the certification may be approved.

Applicants and other interested parties should refer to the website (www.envirodevelopment.com.au) for the most recent versions of the EnviroDevelopment standards. Although the EnviroDevelopment standards outline the evidence required for EnviroDevelopment certification, applicants must ensure that sufficient evidence is provided to justify claims that criteria have been met. Applicants should also refer to the application guidelines for further details on how to apply for EnviroDevelopment certification and the evidence required.

The Elements of EnviroDevelopment

EnviroDevelopment is designed to cover a broad spectrum of environmental and sustainability issues from the initial conceptual stages of development. There are six key elements of EnviroDevelopment. These are ecosystems, waste, energy, materials, water and community. The standards required for certification in each of the elements are explained on the following pages.

The standards have been drafted by a Technical Standards Taskforce consisting of developers, local government, state government, environmental consultants and other professionals. There has also been input from a range of other relevant experts, such as academics involved in calculating water savings or private sector organisations researching the environmental merit of particular materials. They have also been reviewed and approved by the EnviroDevelopment Board of Management.

A developer may apply to have a development certified as meeting the EnviroDevelopment standards for all or any combination of the six key elements, however, if a developer is applying for less than six elements, the essential requirements must be met. A development achieving the requirements of all or any of the EnviroDevelopment elements would be eligible for appropriate recognition as an EnviroDevelopment (i.e. only for the elements in which a particular development had qualified).

A development is only accredited as an EnviroDevelopment for the specific elements for which it shows the icons in the 'leaves' or the individual leaves of that element. For example, Figures 2 and 3 show that a developer has achieved all six EnviroDevelopment elements, whilst Figures 4 and 5 denote a development that has achieved the EnviroDevelopment standards for water, materials and ecosystems. A development achieving the standards for fewer than six of the elements is regarded as an exemplary development, which has focussed its efforts on a narrower range of sustainability issues.

The EnviroDevelopment marketing logo (Figure 6) is used by UDIA for marketing and promotion of the EnviroDevelopment program. This logo is not for use by developers.

Figure 2: The certification logo for a development achieving all six EnviroDevelopment elements



Figure 4: EnviroDevelopment logo denoting a development certified as meeting the EnviroDevelopment standards for ecosystems, materials and water



Figure 5: Horizontal version of EnviroDevelopment logo denoting a development certified as meeting the EnviroDevelopment standards for ecosystems, materials and water



Figure 3: Horizontal version of EnviroDevelopment logo denoting a development certified as meeting all six of the EnviroDevelopment standards



Figure 6: EnviroDevelopment marketing logo (UDIA use only)



Essential Requirements

If applying for certification for less than six elements of EnviroDevelopment, a developer must also meet the following essential requirements and provide sufficient supporting documentation as outlined below.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|--|
| (a) Thorough site analysis to ascertain key features of the site for retention and enhancement including hydrological features, flora, fauna habitats and landforms. | Evidence of site analysis e.g. report and statement from developer. |
| (b) Site management procedures to control erosion, run-off, dust etc. | Erosion and sediment control plan. |
| (c) Vegetative debris to be recycled and reused on site to the greatest extent possible. In instances where this is not possible (and reasoning is stated and documented), arrangements should be made for vegetative debris to be transported and reused off site. | Written statement. |
| (d) Evidence of efforts to increase water use efficiency e.g. building water use efficiencies, stormwater harvesting and reuse, recycled water usage, water efficient landscaping. | Evidence to show a reduction in potable water demand from community supplies. |
| (e) Development masterplan demonstrates passive design. | Evidence and statement of masterplanning from the planner, architect and developer. |
| (g) Evidence of community consultation. | Statement from the developer, evidence of consultation documents e.g. evidence of public meeting/s, evidence of letter drop, evidence of liaison with traditional owner groups, etc. |
| (f) All practices comply with regulatory requirements. | Statement from developer. Copy of development approval notice (if applying for full certification licence - i.e. post development approval). |



1. Ecosystems Element of EnviroDevelopment

TITLE: Ecosystems

OBJECTIVE: Healthy, sustainable ecosystems based on natural processes and rich with native biodiversity

TARGET: Development that aims to protect and enhance existing native ecosystems and encourages natural systems and native biodiversity and rehabilitates degraded sites.

PRINCIPLES

- Encourage maintenance (during and after construction) of native vegetation where existing, and rehabilitation of locally native vegetation where not already in existence in a healthy state
- Encourage protection (during and after construction) of existing habitats for native animals or rehabilitation of such habitats where not already in existence in a healthy state
- Protect habitats and maintain connectivity to reduce fragmentation
- Avoid water pollution and degradation of water quality in waterways and natural systems and remediate any water quality problems occurring on-site or in neighbouring areas
- Minimise disruption to landform and natural ecosystems
- Encourage development on previously developed or degraded sites, whilst considering affordability
- Promote biodiversity awareness

POTENTIAL BENEFITS AND INCENTIVES

Benefits for Occupants

- Satisfaction that occupier is reducing ecological footprint and protecting natural ecosystems and native biodiversity
- Enhanced interaction with nature – may offer health and lifestyle benefits
- Enhanced amenity of area

Benefits for Local, State or Federal Government and Environmental Groups

- Raises awareness of need to protect ecosystems and biodiversity
- More attractive and sustainable city/shire/state
- Helps raise community awareness of government's efforts to enhance sustainability
- Increased private sector investment in ecosystem and biodiversity protection (reduced costs for council but better outcomes)
- Greater private allocation of land for native biodiversity
- Greater community commitment to ecosystems and native biodiversity
- Help to reduce the ecological footprint of communities

Benefits for Developers

- Marketing advantages through quality product and EnviroDevelopment promotion
- Enhanced product
- Visual benefits
- Potential savings in development costs and/or access to incentives
- Reduced approval/assessment times
- Improved corporate image

REQUIREMENTS

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|---|
| <p>1.1 ESSENTIAL ACTIONS</p> <p>1.1.1 As with all sections of EnviroDevelopment, developers must comply with regulatory requirements as a minimum. Of relevance to this element, this includes the Vegetation Management Act and Environmental Protection Act etc.</p> <p>1.1.2 Must conduct thorough site analysis to ascertain key features of relevance to this section, including hydrological features, flora, fauna habitats, and landforms. This report forms part of the evidence required for EnviroDevelopment certification.</p> <p>1.1.3 Achieve the requirements under each of the following sections:</p> <p>RESIDENTIAL / OTHER</p> <ul style="list-style-type: none"> • Water quality (1.2) • Land form (1.3) • Flora (1.4) • Fauna (1.5) <p>INDUSTRIAL / DEVELOPMENTS ACHIEVING DENSITIES OF GREATER THAN 30 DWELLINGS PER HECTARE</p> <ul style="list-style-type: none"> • Water quality (1.2) • Land form (1.3) • Flora and Fauna (1.6) | <p>Statement from developer and or appropriately qualified environmental professional confirming that the development has complied with all relevant regulatory requirements and conducted thorough site analysis. Evidence of site analysis e.g. report, should also be included.</p> <p>Notice of development approval if applicable.</p> |
| <p>1.2 WATER QUALITY</p> <p>Must meet all the requirements of this section as outlined below.</p> <p>1.2.1 Protect natural hydrological regime including riparian zones and buffers (where relevant depending on site).</p> <p>1.2.2 Integrated water cycle management principles incorporated into development design including water sensitive urban design devices such as swales, bioretention basins and wetlands utilised as water treatment devices where appropriate. Set quantifiable water quality targets and verify design through accepted modelling (e.g. MUSIC).</p> <p>Note: may not be appropriate for high density sites. Unless very high treatment levels are to be implemented, application of water sensitive urban design to industrial sites should include the structural separation of areas likely to be contaminated, such as work areas from roofs and other less contaminated surfaces to enable standard urban stormwater treatment devices and water reuse.</p> <p>Recognition can also be given for stormwater reuse (such as in infill sites) where appropriate water treatment measures and infrastructure are to be utilised.</p> <p>1.2.3 Development should be compatible with broadly supported catchment management plans and any appropriate regulatory plans including flood protection management, river management plans etc.</p> <p>Note: for more information regarding catchment management plans and integrated catchment management, please see: http://www.regionalnrm.qld.gov.au/my_region/nrm_plans.html.</p> <p>1.2.4 Minimise use of pesticides, herbicides and artificial fertilisers (can be achieved through choice of landscaping and physical termite barriers etc.).</p> <p>1.2.5 Incorporate natural hydrological features into the development design including maintenance of natural watercourses (where relevant depending on their presence on site).</p> <p>1.2.6 Appropriate drainage to protect both water cycle and development integrity. This should include maintenance of permeable surfaces where possible, including use of permeable pavement in preference to non-permeable pavements where possible and appropriate.</p> | <p>Evidence of incorporation of Water Sensitive Urban Design principles (e.g. swales instead of concrete curbs where appropriate etc.), protection of watercourses, design encouragement of water infiltration etc. as necessary to show achievement of this requirement. Evidence could include, but is not limited to, illustrative evidence including maps, drawings etc. showing topography contours, hydrology and WSUD features. Water balance calculations or MUSIC modelling etc. authorised by developer and / or engineer is also helpful as evidence of the sufficiency of WSUD features and the impact of the development on natural hydrology, stormwater quantities and sediment loads.</p> <p>Evidence of water quality measures (and reasons where they have not been incorporated) from engineer, landscape architect (or related professional) and developer as appropriate.</p> <p>Statement and illustrative evidence including topography maps and drawings outlining compatibility with catchment plans, protection of natural hydrological features, riparian zones and buffers.</p> <p>Statement outlining steps to minimise use of pesticides, herbicides and artificial fertilisers.</p> <p>Evidence that appropriate sediment control and stormwater management plans will be in place during and after construction e.g. erosion and sediment control plan.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
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| <p>1.2.7 Stormwater management provisions during and post construction must be adequately considered and incorporated to avoid enhanced risk of flooding and flood damage and to reduce risk of pollution entering waterways. Design and construct to limit the post-development peak one-year average recurrence interval (ARI) event discharge to the receiving waterway to the pre-development peak one-year ARI event discharge. Must also consider impact on and from adjacent sites.</p> <p>1.2.8 Effective sediment and erosion control measures in place during construction and operation. As a minimum, these should comply with relevant local and State Government requirements.</p> | |
| <p>1.3 LAND FORM</p> <p>1.3.1 Must conduct thorough site analysis to identify areas of prime significance for preservation and to identify areas where clearing and/or major earthworks should specifically not occur. This site analysis should also consider the suitability of the site for earthworks and construction. The development must adequately consider and preserve significant areas based on the advice of this report.</p> <p>1.3.2 Must also achieve at least four out of the following options Note: if a development is unable to achieve four of the following options and the developer shows good reason why the criteria could not be met (for example, with regards to minimising cut and fill), but can provide evidence from an appropriately qualified environmental professional confirming that the development has managed to achieve a significant net benefit to the environment and given appropriate consideration to downstream impacts (as per criteria 1.2), then the development may still be considered for EnviroDevelopment Ecosystems recognition at the discretion of the certifying board.)</p> <p>1.3.2.1 Retain local and adjacent natural landform and integrate with natural landscape and topographic features or build on brownfield site¹ rehabilitating open space areas and minimise detrimental landform-change impacts on water or sediment movement.</p> <p>1.3.2.2 Locate on a brownfield site (two points) or site that had been significantly modified² from its natural state and had little or no ecological value (one point). Site must be decontaminated and where there will be significant open space efforts must be made to rehabilitate natural ecosystems, natural resources, and native biodiversity values of the site.</p> <p>1.3.2.3 Build only on stable, non-flooding land, or if building on land prone to flooding, the site design must:</p> <ul style="list-style-type: none"> • Create a flood credit and reduce levels in flood volumes • Reduce velocity of floods coming off the site • Deliver environmental benefits (e.g. wetland) to site or adjoining land <p>1.3.2.4 Maximum cut and fill of 1.5m (i.e. total retaining wall height of 1.5 metres or 75cm cut and 75cm fill for example) including bulk earthworks (excluding those earthworks which are necessary for WSUD measures or which have been included to meet local Council requirements). Credit can not be gained for this point if there is reason to believe that builders will later increase the cut and fill. This may mean that for sloping lots some form of architectural solutions or review mechanism (e.g. for body corporates) may need to be provided.</p> <p>1.3.2.5 Cut and fill on max 30% of site. Credit can not be gained for this point if there is reason to believe that builders will later increase the cut and fill. This may mean that for sloping lots some form of architectural solutions or review mechanism (e.g. for body corporates) may need to be provided.</p> <p>1.3.2.6 Construction methods to minimise disruption to landform and natural drainage contours (e.g. elevated platforms lightweight in construction are generally encouraged on sloping sites in preference to cut and fill concrete slabs on earth, unless other significant environmental benefits can be shown from the cut and fill approach).</p> | <p>Specific information and wording in development specifications, drawings and plans and in letters of instruction to contractors and briefings to staff to indicate requirements to protect ecosystems as per options.</p> <p>Evidence or statement from engineer/planner stating how this requirement has been met.</p> <p>If building on a brownfield site or significantly modified site, provide details of use of site prior to new development in the form of a site photo prior to development and statement from environmental professional / landscape architect / related professional detailing ecological value of the site prior to development.</p> <p>Evidence that buildings have been designed so as to be considerate of existing site landforms, topography and constraints.</p> <p>Evidence could include topography maps / contour maps, site photos, site plans with an explanation of how site disturbance has been minimised.</p> |

¹ Brownfield site: land within an urban area, which at the time of purchase, 50% of the site had been previously built on.

² Significantly modified: land which has previously been utilised for intensive uses and has little or no ecological value.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
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| <p>1.3.2.7 Minimise site disturbance during construction and limit earthworks and clearing of native vegetation to a maximum of 15 metres beyond building footprint, 2 metres beyond roadway curbs or swales, and 10 metres beyond other constructed areas (e.g. detention basins etc.), although concessions will be made where necessary for protection against bushfires.</p> <p>1.3.2.8 Street layout is designed and constructed to fit with topography with only minimal disruption.</p> <p>1.3.2.9 Site remediation and removal of contaminants from degraded sites.</p> <p>For industrial developments or developments achieving densities greater than 30 dwellings per hectare, projects must meet the criteria in 1.6. For residential subdivisions and all other projects, proceed to 1.4 and 1.5.</p> | |
| <p>1.4 FLORA</p> <p>1.4.1 Must conduct thorough Ecological Assessment (as outlined on page 15) to identify areas of prime significance for preservation and to identify areas where clearing and/or major earthworks should specifically not occur. The development must adequately consider and preserve significant areas based on the advice of this report.</p> <p>1.4.2 Avoid planting invasive species as per WONS (Weeds Of National Significance), weeds on the National Environmental Heritage List (Department of Environment and Heritage), and those incorporated in the relevant planning scheme.</p> <p>1.4.3 Must achieve at least 10 points out of the following options:</p> <p>1.4.3.1 Have an appropriately qualified scientific professional conduct an upfront site assessment of the site, noting areas of ecological value and ensure that the development will protect such areas to the greatest extent possible.</p> <p>1.4.3.2 Conduct thorough ecological flora survey to ascertain biodiversity and populations of vulnerable or threatened species and design development to facilitate the preservation of such species. The development should take significant additional steps over and above the standard requirements and demonstrate significant net gain to the flora and ecosystems, above the standard requirements. If the site has little existing value or no vulnerable or threatened species (as listed under the EPBC Act or IUCN Red List or State Government legislation), the ecological study should note as such.</p> <p>1.4.3.3 >40% of all plants introduced to the site for landscaping public spaces, or for landscaping private areas prior to sale, are locally native³ and >90% are native to Australia or productive.</p> <p>1.4.3.4 Designate and protect any sensitive conservation areas.</p> <p>1.4.3.5 Rehabilitate disturbed sites and degraded natural ecosystems.</p> <p>1.4.3.6 Locate on a brownfield site or site that had been significantly modified from its natural state and had little or no existing ecological value (up to three points available).</p> <p>1.4.3.7 Have a bushfire mitigation and management plan and take appropriate management actions.</p> <p>1.4.3.8 Demonstrate appropriate consideration of future maintenance of native flora and habitat, including initiating a maintenance plan and arranging means for the continuation of this beyond the development and sales stage.</p> | <p>Evidence of Ecological Assessment and its findings from an appropriately qualified scientific professional and appropriate consideration of this assessment in plans and site management and landscape plans.</p> <p>Evidence should include appropriate plans (flora/bushfire management/weed and pest etc.), landscaping schedules/lists and details of measures to protect areas, species or features of conservation value.</p> <p>Evidence from environmental science professional, landscape architect (or related professional) and developer as appropriate.</p> <p>If claiming points under 1.4.3.6 the following evidence must be provided: if building on a brownfield or significantly modified site, provide details of use of site prior to new development in the form of a site photo prior to development and statement from environmental professional / landscape architect / related professional detailing ecological value of the site prior to development.</p> |

³ Locally native: native plants which are endemic to the area.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
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| <p>1.4.3.9 Retain at least 40% of the existing native trees above 3 metres in height.</p> <p>1.4.3.10 Encourage local native plant species and natural ecosystems through retaining them where possible on 30% or more of the site.</p> <p>1.4.3.11 Implement an appropriate weed and pest management strategy, including site rehabilitation and removal of noxious weeds.</p> <p>1.4.3.12 Encourage local native plant species through their incorporation in landscaping and encouragement of their use by purchasers and private land holders.</p> <p>1.4.3.13 Contribute green space significantly in excess of the requirements for green space (subject to acceptance by government of its suitability as either parkland or for conservation value. This area should predominantly include (i.e. >80%) native species. This requirement can be fulfilled by either provision of an appropriate area of suitable land (under secure title though not necessarily handed over to government) or monetary contribution to the relevant authority or an established not-for-profit green group for conservation or green space purposes. Points are to be allocated pro-rata for each 20% (i.e. 1 point for each 20% contribution in excess of government requirements and 5 points for 100% in excess of government requirements). This is capped at a maximum of 5 points. Stringent design guidelines⁴ or other protective measures to secure the use of private land for open space and flora and fauna purposes may also be applicable and contribute to the green space calculations for EnviroDevelopment purposes (however, if the longevity of such measures or benefits is likely to be less than through other means there may need to be a discount factor used in the calculations).</p> <p>Points under this criteria can be claimed if evidence is provided of off-site land holdings, however this land holding can only be claimed once and must have nature conservation value.</p> | <p>Note: If claiming points under this category, a statement must be made regarding the ongoing ownership and maintenance arrangements for this land to provide certainty about the longevity of its maintenance as green space.</p> |
| <p>1.5 FAUNA</p> <p>1.5.1 Must conduct thorough Ecological Assessment (as outlined on page 15) to identify areas of prime significance for preservation and to identify areas where clearing and/or major earthworks should specifically not occur. The development must adequately consider and preserve significant areas based on the advice of this report.</p> <p>1.5.2 Must achieve at least 10 points out of the following options:</p> <p>1.5.2.1 Conduct thorough ecological fauna survey (as outlined on page 15) to ascertain biodiversity and populations of vulnerable or threatened species and design development to facilitate the preservation of such species. Take significant additional steps over and above the standard requirements and demonstrate significant net gain to fauna above the standard requirements. If the site has little existing value or no vulnerable or threatened species (as listed under the EPBC Act or IUCN Red List or State Government legislation), the ecological study should note as such.</p> <p>1.5.2.2 Locate on a brownfield site or a site that has been significantly modified from its natural state and had little or no ecological value (up to three points available).</p> | <p>Evidence of Ecological Assessment (see Ecological Assessment Guidelines on page 15) and appropriate consideration in plans and site management and landscape plans.</p> <p>Evidence should include appropriate plans (ecological fauna survey, master plan, pest management strategy, etc.) and details of measures to protect areas, species or features of conservation value.</p> <p>Evidence from environmental science professional, landscape architect (or related professional) and developer as appropriate.</p> <p>If claiming points under 1.5.2.2 the following evidence must be provided: If building on a brownfield or significantly modified site, provide details of use of site prior to new development in the form of a site photo prior to development and statement from environmental professional / landscape architect / related professional detailing ecological value of the site prior to development.</p> |

⁴References to design guidelines means an enforceable system of design and related principles whether operating under contract, deed, covenant, architectural and landscape code for body corporates or some other means satisfactory to the Board of Management. The developer may be asked to demonstrate active design guideline enforcement.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>1.5.2.3 Retain and enhance ecological corridors linking vegetated and open space areas.</p> <p>1.5.2.4 Protect land and aquatic habitats for native species, with particular focus on threatened or endangered species.</p> <p>1.5.2.5 Ensure ecological corridors are not severed by road networks without provision of appropriate fauna crossings, bridges or tunnels.</p> <p>1.5.2.6 Limit fencing and other structures that restrict safe fauna movement.</p> <p>1.5.2.7 Adopt traffic management strategies to protect fauna.</p> <p>1.5.2.8 Provision of appropriate structures and policies to facilitate native fauna habitation.</p> <p>1.5.2.9 Adopt measures to protect native animals through maintenance of habitat and control of non-native predators or competing species.</p> <p>1.5.2.10 Implement a pest management strategy.</p> <p>1.5.2.11 Have dog and/or cat exclusion zones to allow safe movement of native fauna, particularly in wildlife corridors.</p> <p>1.5.2.12 Heat Island reduction - consider reduction of pavement, carparks, roofs or different materials for their construction (e.g. open-grid pavement) etc. or green (vegetated) or shaded surfaces or light coloured surfaces.</p> <p>1.5.2.13 Minimise light and noise pollution during and post-construction i.e. no direct beam light should be directed beyond the site boundaries or upwards, except where it is falling directly on a surface that it is intended to illuminate (exemptions may be made for illuminated place names).</p> <p>1.5.2.14 Contribute green space significantly in excess of the requirements for green space (subject to agreement by government of its suitability as either parkland or for conservation value – however this does not mean that the land title must be handed over to government). This area should predominantly include (i.e. >80%) native species. This requirement can be fulfilled by either provision of an appropriate area of suitable land (under secure title though not necessarily handed over to government) or monetary contribution to the relevant authority or an established not-for-profit environmental group for conservation or green space purposes. Points are to be allocated pro-rata for each 20% (i.e. 1 point for each 20% contribution in excess of government requirements and 5 points for 100% in excess of government requirements). This is capped at a maximum of 5 points. Stringent design guidelines or other protective measures to secure the use of private land for open space and flora and fauna purposes may also be applicable and contribute to the green space calculations for EnviroDevelopment purposes (however, if the longevity of such measures or benefits is likely to be less than through other means there may need to be a discount factor used in the calculations).</p> <p>Points under the criteria can be claimed if evidence is provided of off-site land holdings, however this land holding can only be claimed once and must have nature conservation value.</p> | <p>Note: If claiming points under this category, a statement must be made regarding the ongoing ownership and maintenance arrangements for this land to provide certainty about the longevity of its maintenance as green space.</p> |

Notes: • Drafted with reference to THG Eco Index and LEED ND and, to a lesser extent, BRE and Melbourne Docklands ESD Guide.
• Unless otherwise stated, each option is worth one point.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|---|
| <p>1.6 FLORA AND FAUNA</p> <p>Industrial developments or developments achieving densities greater than 30 dwellings per hectare.</p> <p>Must achieve at least six points out of the following options:</p> <p>1.6.1 Locate on a brownfield site⁵ or site that had been significantly modified⁶ from its natural state and had little or no existing ecological value.</p> <p>1.6.2 Rehabilitate disturbed sites and degraded natural ecosystems.</p> <p>1.6.3 >40% of all plants introduced to the site for landscaping public spaces, or for landscaping private areas prior to sale, are locally native⁷ and >90% are native to Australia or productive.</p> <p>1.6.4 Encourage local native plant species through their incorporation in landscaping and encouragement of their use by purchasers and private land holders.</p> <p>1.6.5 Green roofs or green walls, incorporating native plant species.</p> <p>1.6.6 Encourage the incorporation of community and productive gardens including space for garden plots, communal or individual vegetable gardens, formal landscaped areas for community uses.</p> <p>1.6.7 Landscaping includes the use of mature trees (height greater than 2m).</p> <p>1.6.8 Heat Island reduction - consider reduction of pavement, carparks, roofs or different materials for their construction (e.g. open-grid pavement) etc. or green (vegetated) or shaded surfaces or light coloured surfaces.</p> <p>1.6.9 Minimise light pollution during and post-construction i.e. no direct beam light should be directed beyond the site boundaries or upwards, except where it is falling directly on a surface that it is intended to illuminate (exemptions may be made for illuminated place names).</p> <p>1.6.10 Minimise noise pollution during and post-construction.</p> <p>1.6.11 Contribute green space significantly in excess of the requirements for green space (subject to agreement by government) of its suitability as either parkland or for conservation value. This area should predominantly include (i.e. >75%) native species. This requirement can be fulfilled by either provision of an appropriate area of suitable land (under secure title though not necessarily handed over to government) or monetary contribution to the relevant authority or an established not-for-profit environmental group for conservation or green space purposes. Points are to be allocated pro-rata for each 20% (i.e. 1 point for each 20% contribution in excess of government requirements and 5 points for 100% in excess of government requirements). This is capped at a maximum of 5 points. Stringent design guidelines or other protective measures to secure the use of private land for open space and flora and fauna purposes may also be applicable and contribute to the green space calculations for EnviroDevelopment purposes (however, if the longevity of such measures is likely to be less than through other means there may need to be a discount factor used in the calculations).</p> <p>Points can be claimed if evidence is provided of off-site land holdings, however this land holding can only be claimed once and must have nature conservation value.</p> | <p>Evidence should include appropriate plans (landscape schedule/plan, master plan, etc.) and details of measures to enhance the ecological features of the development.</p> <p>Evidence to be signed by environmental science professional, landscape architect (or related professional) and developer as appropriate.</p> <p>If claiming points under 1.6.1 the following evidence must be provided: If building on a brownfield or significantly modified site, provide details of use of site prior to new development in the form of a site photo prior to development and statement from environmental professional / landscape architect / related professional detailing ecological value of the site prior to development.</p> <p>Note: If claiming points under this category, a statement must be made regarding the ongoing ownership and maintenance arrangements for this land to provide certainty about the longevity of its maintenance as green space.</p> |

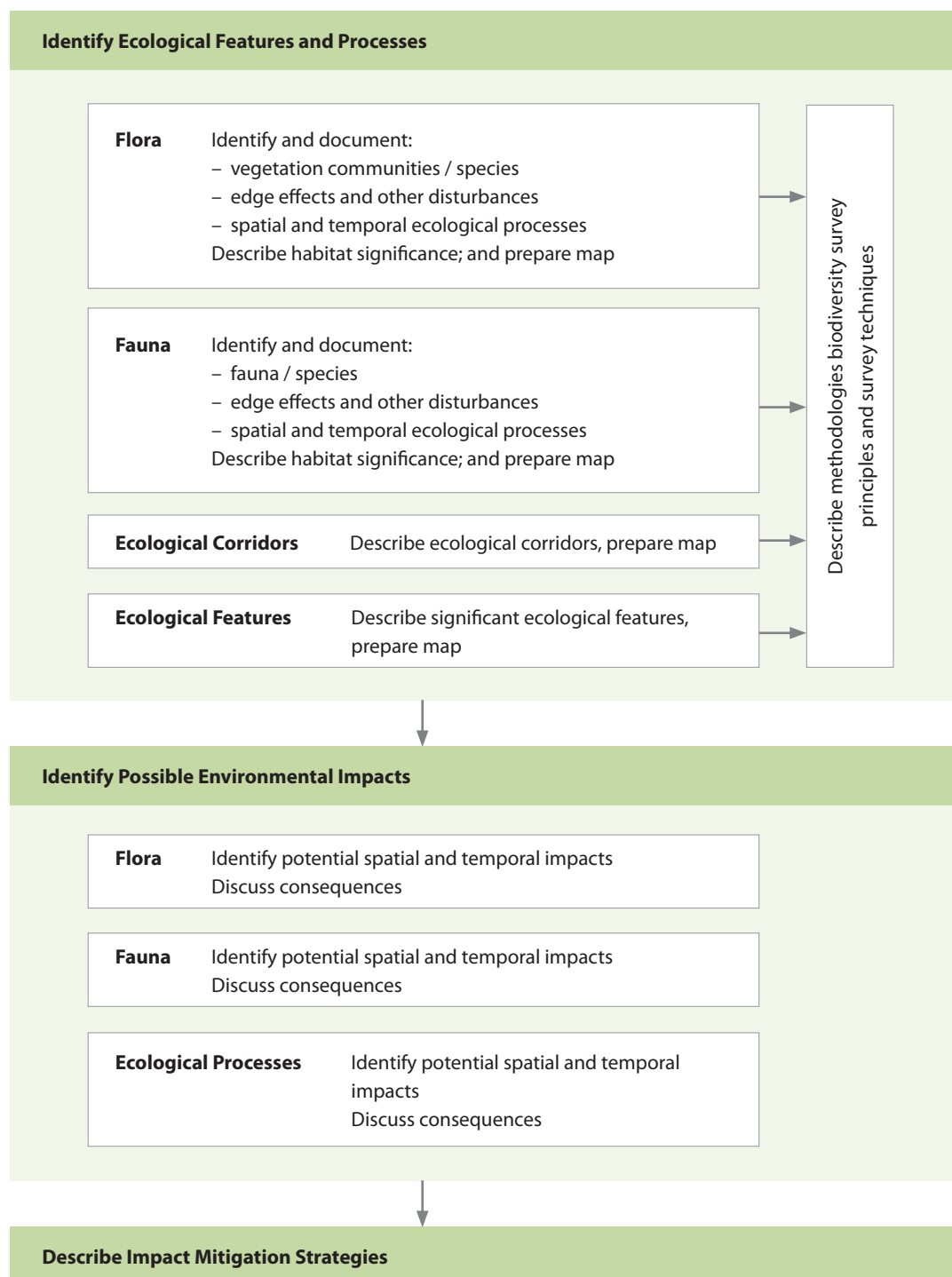
⁵Brownfield site: land within an urban area on which development has previously taken place.

⁶Significantly modified: land which has previously been utilised for intensive for intensive uses and has little or no ecological value.

⁷Locally native: native plants which are endemic to the area.

Ecological Assessment Report Guidelines

The following guidelines should be used when preparing an ecological assessment for the flora and fauna requirements.



Source: Brisbane City Council: Ecological Assessment Guidelines, Available: http://www.brisbane.qld.gov.au/BCC:STANDARD:1326879150;pc=PC_1644



2. Waste Element of EnviroDevelopment

TITLE: Waste

OBJECTIVE: Reduced waste sent to landfill, more efficient use of resources

TARGET: Development that has implemented waste management procedures and practices which reduce the amount of waste to landfill and facilitates recycling.

PRINCIPLES

- Encourage recycling of construction and demolition materials and reduce the amount of waste being dispatched to landfill
- Minimise on-site pollution during the construction phase
- Promote the re-use of existing buildings and materials and reduce demand for resources
- Promote occupancy awareness of waste generation and encourage recycling, composting and waste reduction through the provision of appropriate facilities
- More efficient use of resources

POTENTIAL BENEFITS AND INCENTIVES

Benefits for Occupants

- Satisfaction that occupier is reducing the volume of landfill
- Reduce pollution
- Ease of recycling
- Gardening benefits to occupiers as a result of composting

Benefits for Local, State or Federal Government or Supplier Companies

- Reduction in the demand for landfill space
- Greater community commitment to waste minimisation
- Advantage suppliers that produce materials which can be recycled or which have minimal packaging
- Advantage suppliers and businesses that reuse or recycle materials
- Helps raise community awareness of the need to minimise demand for products that are not recyclable and which significantly contribute to landfill
- Reduction in the development industry's impact on waste generation and contribution to landfill
- More attractive and sustainable city/shire/state
- Reduction in resource consumption
- Help to reduce the ecological footprint of communities
- Urban areas which are better planned for waste collection and recycling

Benefits for Developers

- Marketing advantages through quality product and EnviroDevelopment promotion
- Reduced approval/assessment times
- Improved corporate image
- Reduced costs and charges for waste removal
- Visual benefits
- Cost savings from reduced resource consumption and wastage
- Reduced costs of waste disposal
- Reduced costs for recycling and the availability of more affordable materials from recycled sources due to economies of scale resulting from increased business for the recycling industry

REQUIREMENTS

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|---|
| <p>2.1 ESSENTIAL ACTIONS</p> <p>Must achieve the requirements from the following sections:</p> <ul style="list-style-type: none"> • Pre-construction (2.2) • Construction (2.3) • Post-construction (2.4) | <p>Meet the evidence requirements of each section.</p> |
| <p>2.2 PRE-CONSTRUCTION: DEMOLITION, LAND CLEARING AND SITE PREPARATION PHASE</p> <p>Must achieve each of the following requirements:</p> <p>2.2.1 Site waste management plan for pre-construction and construction phases.</p> <p>2.2.2 Where possible, reuse of existing materials including steel or timber etc., from the original façade.</p> <p>2.2.3 Minimum 40% of demolition, land clearing, or civil works materials/products are recycled or reused on site. In the event that demolition, land clearing or civil works materials cannot be recycled on site, arrangements are made for recycling off site. Recyclable materials include, but are not limited to: cardboard, bricks, glass, metal, timber and concrete. Materials which can be reused include but are not limited to: cleared vegetation used as mulch, rock recycled for road aggregate, piping recycled, crushed concrete reused for road base.</p> <p>2.2.4 Topsoil must be stockpiled and reused to best advantage on site.</p> <p>2.2.5 Hazardous substances, pollutants and contaminants are treated on site to a safe standard according to a sanctioned remediation process or, if this is not feasible, are removed from the site and treated according to a sanctioned remediation process (such as per <i>EPA Draft Guidelines for the Assessment and Management of Contaminated Land</i>: http://www.epa.qld.gov.au/publications/p0009_0aa.pdf/Draft_guidelines_for_the_assessment__management_of_contaminated_land_in_Queensland.pdf).</p> <p>2.2.6 Vegetative debris to be recycled and reused on site (e.g. for landscaping or composting purposes) to the greatest extent possible. If not feasible, arrangements should be made for vegetative debris to be transported and reused off site e.g. contract with landscaper. There should be no pit burning of green waste on site.</p> <p>2.2.7 Acid Sulphate Soils are treated for use as per <i>The Treatment and Management of Acid Sulfate Soils, 2001</i> (Environmental Protection Agency) and/or the <i>QASSIT Queensland Acid Sulfate Technical Manual Legislation and Policy Guide 2004</i>.</p> <p>2.2.8 Appropriate and conforming site management to control erosion, run-off, dust etc., through silt fencing, dust control etc.</p> | <p>Site Waste Management Plan endorsed by the developer, with further statements from the engineer as appropriate. The plan must address each of the requirements for the pre-construction and construction phases.</p> <p>There should also be a written statement by the local authority environmental officer or recycling organisation as appropriate to explain mechanisms in place to facilitate recycling.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|---|
| <p>2.3 CONSTRUCTION PHASE</p> <p>Must achieve at least four out of the following options:</p> <p>2.3.1 Use of written strategies (e.g. incentive programs) and/or contracts with sub-contractors and contractors including a clause requiring waste avoidance and minimisation practices and a requirement to dispose of or reuse/recycle waste in an environmentally responsible manner.</p> <p>2.3.2 Utilisation of waste-recycling contractors or sub-contractors.</p> <p>2.3.3 Waste minimisation techniques, waste recycling and waste management plans and policies of sub-contractors to be considered and used as criteria during the tender/selection process.</p> <p>2.3.4 Provision on site of separate bins to recover timber, glass, metal, concrete and other recyclable materials from the waste stream.</p> <p>2.3.5 Waste minimisation techniques to be included as a part of the employee induction and/or ongoing training process.</p> <p>2.3.6 Use of suppliers who take off-cuts or excess materials for reuse.</p> <p>2.3.7 Selection of materials and products which minimise and/or recycle packaging (e.g. avoid excessive packaging such as plastic-wrapped fixtures or fasteners). Advise suppliers of preference for materials not to be over-packaged.</p> <p>2.3.8 Development designed to maximise use of standard sizes of materials wherever possible to minimise waste.</p> <p>2.3.9 Use of skip bins rather than cages.</p> <p>2.3.10 Use of skip providers who recycle or reuse waste.</p> | <p>Evidence of contracts and/or documentation from local authority, waste contractor or engineer and developer as appropriate to show evidence of achievement of at least four of the options in this section.</p> |
| <p>2.4 POST-CONSTRUCTION PHASE</p> <p>Must achieve each of the following requirements:</p> <p>2.4.1 Development is designed to facilitate access by trucks (e.g. minimum height clearance of 4.5 metres, width of 3 metres and sufficient space away from car parks or other obstacles to allow safe manoeuvring or as agreed with local waste and recycling collecting organisation) for collecting recyclable material and provision of recycling bins on site for use by occupants if there are collection facilities for recycling within a feasible distance (e.g. 20km) or if the development is within the catchment of an organisation (either public or private) undertaking recycling of the likely waste materials.</p> <p>2.4.2 Must achieve at least one of the following requirements:</p> <p>2.4.2.1 Provision is made on lot and/or on site for a compost facility for use by each dwelling/office/facility if this is possible and practical on site (e.g. if there is also a garden of sufficient size to use it on etc.). If individual household/office/facility compost bins cannot be provided, a communal facility may be provided. Compost facility should be at least one cubic meter in size and can be used to recycle a balanced mix of green material (fruit and vegetable scraps) and brown material (twigs etc.).</p> <p>2.4.2.2 Where possible ensure that there are arrangements in place (e.g. contract with appropriate organisation, body corporate procedures or local government service) to provide collection and reuse of garden/green waste.</p> <p>COMMERICAL / HIGH DENSITY / MULTI-UNIT RESIDENTIAL:</p> <p>2.4.2.3 Separate waste chute facilities for recycling.</p> | <p>Statement from local authority and proposed/ or waste contractor or a signed agreement with the local waste contractor that there is sufficient access for the purposes of waste removal.</p> <p>Evidence in plans and statement from local authority, architect or building designer.</p> <p>In the instance that a communal compost facility is provided, evidence in the form of an agreement or contract should be provided detailing how the responsibility and ongoing maintenance of the facility will be managed.</p> <p>Evidence in plans and statement from local authority, architect or building designer.</p> |



3. Energy Element of EnviroDevelopment

- TITLE:** Energy
- OBJECTIVE:** Reduced usage of polluting and non-renewable energy sources
- TARGET:** Measures that would achieve 45% reduction in greenhouse gas (GHG) production from energy use across the development (compared to recent historical data and/or 'traditional' development meeting basic regulatory standards)

Example table of 'traditional' development energy use standards for Class 1 and Class 2 dwellings:

| Development Type | Standard greenhouse gas emissions per household annum | EnviroDevelopment greenhouse gas emissions per annum |
|------------------|---|--|
| Class 1 dwelling | 11 tonnes | 6.1 tonnes |
| Class 2 dwelling | 5.5 tonnes | 3 tonnes |

Reference: Queensland Government (2004), Regulatory Impact Statement: Proposed Amendments to Building and Plumbing Regulations to Improve Housing Sustainability of New Housing, drawing on MMA data.

Greenhouse gas savings for other development types including industrial, commercial, mixed use and retail etc. will be assessed against a comparable non-EnviroDevelopment development benchmark.

PRINCIPLES

To reduce energy use there are two fundamental options, although the solution for a development may be a combination of these options:

- Reduce overall energy use by 45% compared to recent historical data or plausibly modelled performance of a comparable non-EnviroDevelopment development. This will be more than the energy efficiencies mandated by regulation, including the Queensland Development Code.
- Encourage alternative energy sources (e.g. solar, wind, biomass, gas, hydro) for a portion of the development's energy use (without increasing energy use unnecessarily/unreasonably) such that the overall emissions are reduced by 45% compared to recent historical data or plausibly modelled performance of a comparable non-EnviroDevelopment development.

POTENTIAL BENEFITS AND INCENTIVES

Benefits for Occupants

- Increased comfort levels
- Reduced operating costs
- Self-sufficiency of supply (relative to developments supplied only with grid electricity supplies). This may give some relief from power blackouts etc.
- Satisfaction that occupier is reducing ecological footprint
- Rebates for solar panels and solar water heating systems, appliances etc.
- More affordable more sustainable housing
- Qualification for 'green home loans', which may be offered by some financial institutions
- Decreased rates
- Enhanced marketability and property value

Benefits for Local, State or Federal Government or Energy Companies

- Reduced infrastructure costs/delay infrastructure upgrades/equivalent to enhanced capacity
- Reduced greenhouse gas emissions
- Can facilitate greater population growth for limited resources
- More attractive and sustainable city/shire/state
- Helps raise community awareness of government's efforts to enhance sustainability
- Helps raise community awareness of the need to protect the environment and only use resources sustainably
- Reduced size of energy infrastructure requirements
- Reduced peak load
- Helps to reduce the ecological footprint of communities

Benefits for Developers

- Reduced infrastructure charges/rebates based on reduced energy demand as agreed by local council, other levels of government or energy companies
- Rebates for specific initiatives e.g. solar panels and solar water heating systems, etc.
- State, Federal or energy company incentives for reduced GHGs and energy efficiencies
- Marketing advantages through quality product and EnviroDevelopment promotion
- Reduced approval/assessment times
- Improved corporate image
- Funding for alternative energy sources

REQUIREMENTS

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>3.1 ESSENTIAL ACTIONS</p> <p>In addition to the regulatory requirements, such as under the Queensland Government's Sustainable Housing provisions in the Queensland Development Code the following are also essential for achievement of the EnviroDevelopment energy element.</p> <p>3.1.1 Development must consider solar orientation of lots and solar access to buildings. Hence, developments must be masterplanned to demonstrate passive design of buildings.</p> <p>3.1.2 Development should show evidence that shielding from hot summer sun, ventilation and topography have been considered and addressed.</p> <p>3.1.3 Measures aimed at specifically reducing peak load. This should include use of off-peak energy or timers for uses such as pool filters, unless energy is provided by an energy source independent of the grid and some measures are in place aimed at reducing the use of air conditioners. This may also include load limiting devices, direct load control or other hardwired interventions.</p> <p>3.1.4 Where air conditioners are included in dwellings/buildings, the systems must be more energy efficient than a comparable system intended for the same use. Where air conditioners are included in single dwellings/units, the systems must have a minimum 4.5 star heating and cooling energy rating and should be professionally sized.</p> | <p>Provide evidence that lot layout and/or building orientation (as appropriate) have been designed in consideration of solar orientation. This can include map of development layout and orientation, lot layout and building envelope and requirements for buildings to consider orientation.</p> <p>Appropriate evidence: evidence in plans, and statement from masterplanner and developer.</p> <p>Appropriate evidence includes a signed contract with the energy provider.</p> <p>Provision in Architectural Guidelines or equivalent or statement from developer.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>3.1.5 Efficient lighting in common areas (e.g. street lighting, public spaces), such as through utilising solar power, fluorescent, LED fittings or green power, etc.</p> <p>3.1.6 Must meet requirements of 3.2 to show reduction in greenhouse gas production.</p> | <p>Evidence in masterplan or electrical plans with statement from engineer or developer.</p> |
| <p>3.2 REDUCTION IN GREENHOUSE GAS PRODUCTION</p> <p>Development must take measures to ensure that it meets the requirements of at least one of the following options. Where the buildings are not actually built, significant design guidelines⁸ would be required to ensure that the buildings will meet appropriate standards.</p> <p>3.2.1 Renewable, Non-Polluting Energy Source</p> <p>Provision of solar power (or other non-polluting, renewable power source) for >45% predicted energy use for the development.</p> <p>3.2.2 Reduced Emission Energy Source</p> <p>Provision of reduced emission energy source to achieve > 45% reduction in emissions from the predicted energy use for the development. For example, if a power source has produced half the GHGs of coal generated electricity, then it would need to be used for 90% of the development to achieve the same 45% reduction in GHG emission as would be achieved simply by using 45% less coal-generated electricity.</p> <p>3.2.3 Building Energy Efficiency</p> <p>Buildings will achieve 45% energy efficiency through design, fittings and features.</p> <p>Examples of means to achieve this may include: insulation, cross-ventilation, eaves, enhanced natural lighting, energy efficient design, very low energy water heating, solar powered room heating and cooling (e.g. solar powered fans), 100% energy efficient lighting, design for passive climate control etc.</p> <p>Note: As the requirement is for 45% reduction in greenhouse gases from energy use across the development, where communal or public facilities are provided that utilise energy either the developer will need to also show that these facilities will achieve 45% efficiencies or the buildings will need to be more than 45% efficient to compensate (or vice versa).</p> <p>3.2.4 Combination of the Above</p> <p>A combination of options above to achieve required efficiency.</p> | <p>Statement from engineer showing the energy requirements and the energy provision through alternative sources (i.e. calculations on the energy balance). May also require submission of evidence of performance efficiencies of specific technology.</p> <p>Statement from engineer showing the energy requirements and the energy provision through alternative sources (i.e. calculations on the energy balance). May also require submission of evidence of performance efficiencies of specific technology.</p> <p>Where retail green power is utilised to achieve this element, evidence must be shown that long-term contract arrangements (greater than 5 years) have been made with the retail supplier or there are such requirements locked in on an ongoing basis in the body corporate rules or building tenancy agreements or similar.</p> <p>Evidence should include one of the following:</p> <ul style="list-style-type: none"> • Evidence of energy efficiency using BERS, AccuRate or NatHERS or similar. • Building energy efficiencies including, but not limited to, examples provided in the EnviroDevelopment Energy Efficiency Guide. • Statement from engineer showing the energy requirements of the development and the energy savings compared to 'traditional'/ historical developments and the energy provision through alternative sources (i.e. calculations on the energy balance). This may also require submission of evidence of performance efficiencies of specific technology. <p>If the applicant is provides information regarding star ratings of houses (e.g. BERS, AccuRATE, NatHERS) (i.e. at least five stars), evidence should include ABSA (Association of Building Sustainability Assessors) certificate using second generation software systems' thermal calculation method.</p> <p>Meet the evidence requirements of the relevant options as above.</p> |

⁸References to design guidelines means an enforceable system of design and related principles whether operating under contract, deed, covenant, architectural and landscape code for body corporates or some other means satisfactory to the Board of Management. The developer may be asked to demonstrate active design guideline enforcement.

Energy Efficiency Guide

The energy efficiency guide considers approximate energy savings for a number of energy efficiency measures. The below estimates are based on a number of assumptions and should be used as a guide only. The guide may not be applicable to all types of development and is primarily appropriate for small scale (less than 100 dwellings) developments.

In addition to energy efficiencies included below, developers choosing this option to achieve the energy element should fulfill the essential actions (3.1).

In the instance of alternative energy saving measures, developers are required to submit their calculations as a part of the submission.

| Energy Generation | | Nominal Estimated Energy Savings per Household per year | Estimated Greenhouse Gas Savings per household per year (kg per household per year) |
|--|-------------------|---|---|
| The dwelling/s have renewable energy generation (e.g. solar photovoltaic cells) installed with a capacity of: | ≥ 1.0 kW | 5,400kWh* | 5,616 |
| | ≥ 0.8 kW < 1.0 kW | 3,000kWh* | 3,120 |
| | ≥ 0.6 kW < 0.8 kW | 2,400kWh* | 2,496 |
| | ≥ 0.4 kW < 0.6 kW | 1,700kWh* | 1,768 |
| | ≥ 0.2kW < 0.4kW | 1,000kWh* | 1,040 |
| | ≥ 0.064 < 0.2kW | 300kWh* | 312 |
| Hot Water Systems | | | |
| Gas boosted solar hot water system installed which is eligible for ≥ 20 Renewable Energy Certificates* | | 2,600kWh* | 2,704 |
| Electric-boosted solar hot water system* | | 2,300kWh* | 2,392 |
| Electric heat pump hot water system installed which is eligible for ≥ 28 Renewable Energy Certificates* | | 2,300kWh* | 2,392 |
| 5 Star Gas Water Heated installed with temperature control suitable for shower fittings with a 3 Stars WELS rating | | 1,000kWh* | 1,040 |
| Insulation | | | |
| R-value of ceiling insulation of at least R2.5† and R-value of wall insulation of at least R1.0† | | 1,500kWh† | 1,560 |
| House Design | | | |
| 900mm eaves on the east, west and north facing walls* | | 1,600kWh* | 1,664 |
| 1200mm eaves on the east, west and north facing walls* | | 1,900kWh* | 1,976 |
| Adjustable external shutters or blinds shading east and west facing rooms* | | 800kWh* | 832 |
| Lighting | | | |
| 100% Fluorescent or LED lighting in all rooms | | 760kWh‡ | 790 |
| Metering | | | |
| Smart Metering | | 882kWh | 917 |
| Cooking | | | |
| Gas Cooking | | | 507 |
| TARGET (45% Reduction) | | 4,712kWh | 4,900kg |

* McLennan Magasanik Associates Pty Ltd, 2002, Social, Economic and Environmental Implications of Proposed Energy Efficiency Amendments to BCC's City Plan House Code.

† Environmental Protection Agency, (2004) The Healthy Home Project, Available at: http://www.healthyhomeproject.com/stops/large/energy_smart_houses.pdf

‡ Sustainable Energy Development Office, 2003, Lighting, Available at: http://www1.sedo.energy.wa.gov.au/uploads/lighting_4pg_45.pdf

Optimal eave size and location is dependant on climatic region.



4. Materials Element of EnviroDevelopment

| | |
|-------------------|---|
| TITLE: | Materials |
| OBJECTIVE: | Environmentally responsible material usage |
| TARGET: | Development that predominantly utilises environmentally responsible materials to lower environmental impacts in preference to other materials when such options are available and feasible, without significantly jeopardising the functionality or liveability of the development. |

PRINCIPLES

- Encourage selection of materials from environmentally responsible sources such as:
 - reuse resources (including buildings, structures and materials)
 - use recycled resources (e.g. materials)
 - renewable sources
 - non-polluting sources
 - low lifecycle energy materials (i.e. encourage choice of materials that are not energy-intensive to produce, are locally available and durable)
 - materials that are non-toxic and do not liberate toxic gases or dangerous particles
- Decrease use of less environmentally responsible materials
- Encourage high indoor air quality through choice of materials
- Maintain design and performance standards
- Encourage use of materials that can be recycled or reused at the end life of the development
- Maintain affordability within reasonable parameters

POTENTIAL BENEFITS AND INCENTIVES

Benefits for Occupants

- Satisfaction that occupier is reducing ecological footprint through reduced greenhouse gas production, reduced pollution and/or reduced detrimental impacts on the environment
- Comfortable, safe living areas with health benefits through reduced toxic surfaces or gases and reduced allergens
- Pride about environmentally friendly housing choice
- Lower lifecycle energy materials are often more durable
- Enhanced marketability and property value
- Reduced operating costs and ongoing maintenance costs

Benefits for Local, State or Federal Government or Supplier Companies

- Energy efficiency leading to reduced greenhouse gas production and reduced pollution, which in turn can lead to a more liveable environment and help reduce climate change
- Advantage suppliers that source materials or inputs from renewable sources (e.g. sustainable timber or other organic sources), or produce materials through recycling or other environmentally friendly processes.
- Encourages recycling and reduces landfill
- More attractive and sustainable city/shire/state
- Helps raise community awareness of government's efforts to enhance sustainability
- Helps raise community awareness of the need to protect the environment and use resources responsibly

- Health benefits from better indoor air quality and reduced toxic products
- Reduction in resource consumption
- Help to reduce the ecological footprint of communities

Benefits for Developers

- Marketing advantages through quality product and EnviroDevelopment promotion
- Product differentiation
- Improved corporate image
- More affordable environmentally responsible material choices through economies of scale
- Some government incentives may be possible through helping to reduce climate change
- Lower lifecycle energy materials may be more affordable than some others due to lower energy inputs in production or transport etc.

REQUIREMENTS

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|--|
| 4.1 ESSENTIAL ACTIONS Must meet the criteria from the following sections: <ul style="list-style-type: none"> • Environmentally responsible materials (4.2) • Non-toxic materials (4.3) • Local products (4.4) • Minimise packaging (4.5) | Meet the evidence requirements of each section. |
| 4.2 ENVIRONMENTALLY RESPONSIBLE MATERIALS Minimum 20% construction (by volume) made from either (or a combination of): <ul style="list-style-type: none"> • Reused resources (4.2.1) • Materials with high content of recycled material (4.2.1) • Sustainable, renewable sources (4.2.2) • Materials with lifecycle energy at least 30% lower than standard alternative product fulfilling a comparable purpose (considering extraction, production transport and durability) (4.2.3) • Responsibly sourced and manufactured materials (4.2.4) At least 60% of the environmentally responsible materials must be used in built form i.e. in house / building construction, as opposed to the use of environmentally responsible materials in civil works. | Evidence in plans and statement from engineer, architect or building designer and developer. |
| 4.2.1 Reused Resources and Recycled Materials The recycled content can be achieved through: <ul style="list-style-type: none"> • Reused structure or façade, etc. • Reuse of products such as steel or timber • Choice of materials that have a high recycled product content Note: If a material contains less than around 50% recycled content then it will need to contribute a higher portion of the building pro rata i.e. a material of 25% recycled content would need to make up approximately 40% of the building materials to totally fulfil this requirement. | Evidence should include a statement from developer explaining what was reused and/ or what the recycled materials or sustainable materials were used for in the development. There should also be a statement from the developer and the supplier about the recycled content of materials. Include an indication of the proportion of the total materials used in the development which are materials of this category. |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>4.2.2 Sustainable, Renewable Materials</p> <p>Sustainable, renewable sources include materials that come from sustainably produced organic products such as sustainable forestry operations⁹, straw, sustainable bamboo plantations etc. They can also include other materials that are produced and recycled through an environmentally friendly (low energy usage, non-polluting etc.) process.</p> <p>4.2.3 Total Lifecycle Energy</p> <p>Materials with lifecycle energy at least 30% lower than standard alternative product fulfilling a comparable purpose (considering extraction, production transport and durability).</p> <p>Where no suitable scientific data exists for total lifecycle energy components of particular materials, it would be expected that calculations be done factoring in:</p> <ul style="list-style-type: none"> • An estimation of the energy required in their production (embodied energy); • An estimation of the energy required for their transport (thereby advantaging local suppliers); and • An estimation of the longevity of the materials compared to alternative products (i.e. if a product is twice as durable and likely to be used for this purpose for twice as long then under this formula it can afford to utilise twice as much energy in its production and/or transport than alternative products and still have the same lifecycle energy estimate). <p>The lifecycle energy of a component should be evaluated by comparison to other products fulfilling a comparable role. For example, for a wall it should be per m² of wall area and for insulation it should be compared to other products that achieve the same R score.</p> <p>Note: This section may evolve over time to consider other attributes than life cycle energy costs, however limited data generally makes this unfeasible at this stage.</p> | <p>A statement should be provided from the developer outlining the mechanism by which materials qualify as being from sustainable, renewable sources. Appropriate certification (e.g. that timber comes from sustainable forestry practices) must also be provided where applicable.</p> <p>Include an indication of the proportion of the total materials used in the development which are materials of this category.</p> <p>Evidence for this section can include research documentation from research organisations (e.g. Universities, CSIRO) as to the specifications of materials having low lifecycle energy costs.</p> <p>Include an indication of the proportion of the total materials used in the development which are materials of this category.</p> |

⁹ Sustainable forestry operations: timber is sourced from either a certified timber source or is accompanied by chain of custody documentation as evidence that the timber has been sourced from a legally harvested and sustainably managed forest.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|---|
| <p>4.2.4 Responsibly Sourced and Manufactured Materials</p> <p>Use of suppliers who produce responsibly sourced and manufactured materials. Materials from manufacturers who have sourced input materials from sustainable sources and have implemented cleaner production principles i.e. the manufacturing process involves minimal use of non-renewable energy and water and either there are no polluting by products or such by products are significantly reduced. To qualify, products should be from manufacturers who certify (or ideally have externally certified) that their product manufacturing process uses less than 70% of the water or fossil fuel energy and reduces wastes and polluting by-products by more than 30% compared to industry standards or major manufacturers producing comparable products.</p> <p>Note: to meet this requirement, materials making up 20% of the materials used must include materials used in at least 3 of the following categories:</p> <ol style="list-style-type: none"> 1. Framing 2. Roof 3. Flooring 4. External walls 5. Internal walls 6. Foundations 7. Staircases 8. Other | <p>Evidence may include EMS certification/chain of custody certificate/or equivalent documentation certifying environmental benefits compared to industry standards (e.g. statement detailing manufacturing production compared to industry standards) from the manufacturer or supplier issued at either the production stage or both the production and extraction phases for each material as appropriate.</p> <p>Include an indication of the proportion of the total materials used in the development which are materials of this category.</p> |
| <p>4.3 NON-TOXIC MATERIALS</p> <p>Non-toxic and low emission products should be utilised in common areas and encouraged in private dwellings or commercial space and meet at least two of the following options:</p> <p>4.3.1 Use of non-toxic or low toxicity paints on >90% of all internal painted surfaces.</p> <p>4.3.2 Use of non-toxic or low toxicity floor coverings on >80% of all indoor covered floors.</p> <p>4.3.3 Use of low-toxicity sealants and adhesives etc. where possible.</p> <p>4.3.4 Select non-allergenic materials for furnishings where feasible.</p> <p>Note: Non-toxic products include those that do not emit VOC gases or other known toxic substances. Preference should also be given to reducing formaldehyde.</p> | <p>Statement from developer and architect and/or interior decorator as applicable, stating how this requirement has been met.</p> |
| <p>4.4 LOCAL PRODUCTS</p> <p>Developers have considered utilising local manufacturers and/or suppliers where possible, or utilise the most economical method of transportation with regard to fossil fuels.</p> | <p>Statement from developer outlining such consideration of local materials and suppliers.</p> |
| <p>4.5 MINIMISE PACKAGING</p> <p>Developers have, where appropriate chosen materials and suppliers that minimise and/or recycle packaging.</p> | <p>Statement from developer outlining such consideration of materials and suppliers that minimise and/or recycle packaging.</p> |



5. Water Element of EnviroDevelopment

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|-------------------|---|
| TITLE: | Water |
| OBJECTIVE: | Improved water use efficiency |
| TARGET: | Measures that would achieve 55% reduction in potable water use across the development (compared to recent historical data and/or 'traditional' development meeting basic regulatory standards). |

Example table of 'traditional' development water use standards:

| Development Type | Standard | | | EnviroDevelopment |
|------------------|--------------------|--------------------|--------------------|--------------------|
| | External | Internal | Total | Total |
| Class 1 dwelling | 420L/household/day | 400L/household/day | 820L/household/day | 369L/household/day |
| Class 2 dwelling | 238L/household/day | 257L/household/day | 495L/household/day | 222L/household/day |

Reference: Queensland Government (2004), Regulatory Impact Statement: Proposed Amendments to Building and Plumbing Regulations to Improve Housing Sustainability of New Housing, drawing on MMA data.

PRINCIPLES

- Reduce potable water use. There are two fundamental strategies to achieve this, although a combination of these strategies may also be selected:
 - Reduce overall water use by 55% – e.g. through water efficiency mechanisms – more than mandated under Queensland Development Code.
 - Utilise alternative water sources (e.g. rainwater, stormwater, dual reticulation) for more than 55% of the development's water use (without increasing water use unnecessarily/unreasonably). If underground water/bore water is to be used to supplement potable supplies, there will also need to be evidence of water efficiency mechanisms and water balance calculations to show aquifer recharge.

Notes:

- Where estimations of rainfall are necessary to calculate the water usage (e.g. for landscape and gardens) or supply/harvesting (e.g. for rainwater and storm water solutions) to determine the water saving, the calculations should be based on median rainfall from at least 10 years of recent data.
- Where there are known historical water usages for the types of land uses the development will include, these may be used as the baseline against which efficiency is measured. (This could include different types of developments or land uses such as golf courses for example.) Otherwise, calculations will also need to be submitted about the predicated water use if it was developed 'traditionally', to compare with the water use for the proposed EnviroDevelopment.

POTENTIAL BENEFITS AND INCENTIVES

Benefits for Occupants

- Reduced operating costs
- Self-sufficiency of supply
- Satisfaction that occupier is reducing ecological footprint
- Rebates for rainwater tanks, appliances etc.
- More affordable more sustainable housing

- Qualification for 'green homes loans', as offered by some financial institutions
- Decreased rates
- Enhanced marketability and property value

Benefits for Local, State or Federal Government

- Reduced mains water consumption
- Reduced infrastructure costs/delay infrastructure upgrades/equivalent to enhanced capacity
- Improved stormwater quality through improved stormwater management
- Reduced local flooding through reducing peak stormwater discharges
- Can facilitate greater population growth for limited resources
- More attractive and sustainable city/shire/state
- Helps raise community awareness of government's efforts to enhance sustainability
- Helps raise community awareness of the need to protect the environment and only use resources sustainably
- Helps to reduce the ecological footprint of communities

Benefits for Developers

- Marketing advantages through quality product and EnviroDevelopment promotion
- Recognition of development as an EnviroDevelopment
- Reduced approval/assessment times
- Reduced size of water mains
- Improved corporate image
- Reduced infrastructure charges based on reduced water demand as agreed by local council.
- Rebates for rainwater tanks, appliances etc.
- May help facilitate site-based solutions for reducing demand on town supplies of potable water
- Greater lot utilisation

REQUIREMENTS

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|---|
| <p>5.1 ESSENTIAL ACTIONS</p> <p>Must meet the requirements to show at least 55% reduction in potable water demand and reduce water consumption for irrigation by 50% (where irrigation demand exceeds 25% of total water use for the development).</p> | <p>Meet evidence requirements of the relevant option/s of 5.2 and 5.3 (if applicable).</p> |
| <p>5.2 55% REDUCTION IN POTABLE WATER DEMAND</p> <p>In addition to the regulatory requirements for water efficiency, a development will need to meet the criteria below for at least one of the options to show reduction of potable water demand from community supplies of 55% compared to historical water use or water use for 'traditional' development types, or compared to similar commercial or industrial operations for certification as an EnviroDevelopment (or other efficiency as outlined below).</p> | |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>5.2.1 Stormwater Harvesting</p> <p>Stormwater harvesting (e.g. broad scale collection of stormwater runoff for use in irrigation).</p> | <p>Certification by engineer or local government engineer or development assessment officer or other qualified professional (e.g. through water balance calculations and hydrological modelling and a statement) that sufficient stormwater will be available and that the civil works will be constructed in such a way as to facilitate its harvest and use. (Such infrastructure should be constructed as part of the civil works.)</p> <p>It is also a requirement to show evidence that it is or will be connected to and utilised by toilet, garden or landscaping uses etc. as required to reduce demand on potable water supply by more than 55%. This could be evidenced through a report signed by a plumber or plumbing inspector, body corporate contract, covenant or similar in addition to worked calculations showing that this will provide greater than 55% reduction in demand on potable water supplies.</p> |
| <p>5.2.2 Recycled Water</p> <p>Plumbing of recycled water reticulation (such as dual reticulation facilitating the reuse of treated effluent water).</p> | <p>Certification by engineer, water provider or local government engineer or development assessment officer or other qualified professional that dual reticulation is or will be provided (e.g. as part of the civil works).</p> <p>It is also a requirement to show evidence that it is or will be connected to and utilised by toilet, garden, landscaping uses etc. as required, to reduce demand on potable water supply by more than 55%. This could be evidenced through a report signed by a plumber / plumbing inspector, body corporate contract, covenant or similar in addition to worked calculations showing that this will provide greater than 55% reduction in demand on potable water supplies.</p> |
| <p>5.2.3 Greywater Reuse</p> <p>Greywater reuse (e.g. plumbing to facilitate reuse of greywater on lot).</p> | <p>Certification by engineer or local government engineer or development assessment officer or other qualified professional (e.g. through water balance calculations) that sufficient appropriate greywater reuse will occur (e.g. infrastructure constructed as part of the civil works).</p> <p>It is also a requirement to show evidence that it is or will be connected to and utilised by garden or landscaping uses etc. as required to reduce demand on potable water supply by more than 55%. This could be evidenced through report signed by a plumber or plumbing inspector, plumbing approval, body corporate contract, covenant or similar in addition to worked calculations showing that this will provide greater than 55% reduction in demand on potable water supplies.</p> |
| <p>5.2.4 Rainwater Harvesting</p> <p>Rainwater harvesting (e.g. collection of rainwater in tanks from roof runoff).</p> | <p>Certification by engineer or local government engineer or development assessment officer or other qualified professional (e.g. through water balance calculations) that sufficient rainwater harvesting and storage is provided (e.g. infrastructure constructed as part of the civil works) to reduce demand on potable supplies by 55%, at least in years with rainfall equivalent to the median rainfall of a recent 10 year period.</p> <p>It is also a requirement to show evidence that it is or will be connected to and utilised by toilet, garden or landscaping uses etc. as required to reduce demand on potable water supply by more than 55%. This could be evidenced through a report signed by a plumber /plumbing inspector, body corporate contract or covenant etc. in addition to worked calculations showing that this will provide greater than 55% reduction in demand on potable water supplies.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>5.2.5 Sustainable Use of Underground Water Sources</p> <p>Use of underground water to reduce demand on other water supplies plus water efficiency measures to reduce total water use by at least 25%.</p> <p>5.2.6 Water Use Efficiency</p> <p>Where the buildings and/or landscaping are being constructed or mechanisms are in place to ensure water efficiency measures will be implemented, ensure that they achieve water efficiency of 55% or greater.</p> <p>Examples of fittings and features to achieve this may include: 3 stars WELS rated fittings, low flow dual flush toilet, rainwater tanks, flow restrictors, etc.</p> <p>(Recognition may also be given to high-rise type designs that either are designed not to need air-conditioning or choose air-conditioning systems that are extremely water efficient.)</p> <p>Water efficient landscaping (through design, choice of plants or watering system) may also be considered as part of the requirement.</p> <p>Note: As the requirement is to reduce water use by 55% across the development, if there is also communal green space or facilities etc. that will have traditional water requirements and be watered with potable water, greater than 55% efficiency will need to be achieved for the houses to achieve 55% efficiency across the development. There can be any combination of efficiencies between the individual house blocks and communal land/ green space provided that 55% efficiency is achieved across the whole development. Conversely, if the communal land and/or facilities are especially water efficient (i.e. more than 55%) it could be possible to meet the requirements without achieving 55% efficiency across all houses.</p> <p>5.2.7 Combination of the Above Options</p> <p>A combination of options above to achieve required efficiency.</p> <p>5.2.8 Other</p> <p>For industrial, commercial or retail developments or manufacturing plants utilising specific technological innovations to reduce water use. Must show 55% reduction in potable water demand compared to historical data or comparable development types.</p> | <p>Certification of bore licence and capacity, together with signed statement of use in the development and plumbing intentions. Must also show reduction in water use by 25%. Must show proof of recharge (by hydro-geologist) (e.g. through ponds and dams) and water balance calculations to show that there will be no net drain on aquifer.</p> <p>Evidence should include one of the following:</p> <ul style="list-style-type: none"> • EnviroDevelopment Guide option for Water Efficiency (primarily appropriate for small scale developments where the water use of the dwellings will be more than 90% of the development's total water use) or • Signed written statement by water modelling professional supported by water usage and water balance calculations (e.g. engineer if house and fittings solution or, landscape architect, plus water balance calculations if landscape solution). May also require evidence of performance efficiencies of specific technology to be submitted. <p>Evidence requirements for relevant options as above.</p> <p>Evidence of efficiencies compared to other industrial operations in comparable sectors – together with signed statement by engineer.</p> |
| <p>5.3 Irrigation</p> <p>(where irrigation demand exceeds 25% of total water use for the development)</p> <p>Reduce potable water consumption for irrigation by 50% from a calculated baseline case.</p> | <p>Evidence of efficiencies, and signed statement by landscape architect or other qualified professional.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|---|
| <p>5.3 Irrigation (cont.)</p> <p>Reductions can be made from any combination of the following items:</p> <ul style="list-style-type: none"> • Plant species factor (i.e. use of native plants or xeriscaping) • Irrigation efficiency • Use of captured rainwater • Use of recycled wastewater • Use of water treated and conveyed by a public agency specifically for non-potable uses. | |

Water Efficiency Guide

This is an option primarily for small scale developments (less than 100 lots) with primarily class 1 dwellings and where the dwellings account for 90% or more of the development's total water use.

The water efficiency guide considers approximate water savings for a number of water efficiency measures. The below estimates are based on a number of assumptions and should be used as a guide only. In addition to the below guide, developers should consider water saving measures for public spaces including greywater reuse and stormwater harvesting. In the instance of alternative water saving measures, developers are required to submit their calculations as a part of the submission.

| Water Pressure | | Nominal Estimated Water Savings per Household per year |
|---|------|--|
| Water pressure is limited to 3.5 bar (350kPa) or less, through system design or water pressure limiting devices ^{oe} | | 8,600L [^] |
| Toilets, Fittings, Showers | | |
| Toilets with dual flush (4.5L/3L) ^{oo} (4 Stars [WELS] rated) | | 9,700L ^{^s} |
| All kitchen, laundry and bathroom sink and basin taps have 4 stars [WELS] or greater ^{oe} | | 7,850L ^{oo} |
| All showers are 3 stars [WELS] rated ^{oe} | | 37,800L ^{oo} |
| All showers have thermostatic mixers ^{oo} | | 1,300L ^{oo} |
| Rainwater Tanks/Stormwater Harvesting | | |
| Rainwater tank supplying garden with a capacity of: | 1kL | 19,300L ^f |
| | 2kL | 28,500L ^f |
| | 3kL | 33,300L ^f |
| | 4kL | 37,300L ^f |
| | 5kL | 39,000L ^f |
| | 10kL | 47,800L ^f |

| Rainwater Tanks/Stormwater Harvesting Cont. | | Nominal Estimated Water Savings per Household per year |
|--|------|--|
| The rainwater tank supplies the toilet [∞] | 1kL | 2,300L ^f |
| | 2kL | 3,400L ^f |
| | 3kL | 3,900L ^f |
| | 4kL | 4,400L ^f |
| | 5kL | 4,600L ^f |
| | 10kL | 5,600L ^f |
| The rainwater tank supplies garden/outdoor use, a toilet and laundry | 1kL | 37,800L ^f |
| | 2kL | 55,900L ^f |
| | 3kL | 65,300L ^f |
| | 4kL | 73,100L ^f |
| | 5kL | 76,500L ^f |
| | 10kL | 93,700L ^f |
| Dual Reticulation | | |
| Dual reticulation for all outdoor purposes (assuming that the development has significant outdoor area e.g. > 100m ² per dwelling) | | 152,600L |
| Irrigation Systems | | |
| Water efficient drip irrigation landscape system | | 6,100L [°] |
| Water efficient automatically controlled garden irrigation system with soil moisture sensing is installed for at least 100m ² of garden area [∞] | | 6,100L [∞] |
| TARGET (55% reduction) | | 164,615L |

[∞] McLennan Magasanik Associated Pty Ltd, 2004, *Economic, Social and Environmental Analysis of the Draft Sustainable Housing Code Version 7x*

[∞] Brisbane City Council, 2005, *Sustainable Home Checklist for Houses*

[^] Department of Local Government and Planning, Environmental Protection Agency, 2004, *Regulatory Impact Statement – Proposed Amendments to Building and Plumbing Regulations to Improve Sustainability of New Housing*.

[§] South East Water, *how much water do you use?* Available at: http://www.southeastwater.com.au/sewl/upload/document/water_you_use.pdf

^f Adapted from: McLennan Magasanik Associates Pty Ltd (2004), *Social, Economic and Environmental Analysis of the Draft Sustainable Housing Code Version 7x*, Coomes P., and Kuczera G. (2003), *Analysis of the Performance of Rainwater Tanks in Australian Capital Cities*.

[°] Melbourne Water, *The Source*, Available at: http://www.melbournewater.com.au/content/library/publications/the_source/The_Source_Issue_34.pdf



6. Community Element of EnviroDevelopment

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|-------------------|--|
| TITLE: | Community |
| OBJECTIVE: | Vibrant, cohesive, healthy, happy, adaptable, sustainable communities |
| TARGET: | Development that encourages community spirit, sustainable local facilities, reduced use of private motor vehicles and accessible and flexible design that welcomes a diversity of people and adapts to their changing needs. |

PRINCIPLES

- Consult with surrounding community and traditional owners
- Encourage community cohesiveness through facilities, networks and sub-division layout design/masterplan
- Encourage use of public transport or walking and cycling etc.
- Accessible local employment, education and services to encourage cohesive community and reduce the need for regular travel beyond the local area
- Encourage safe, accessible, comfortable housing, facilities and workplaces
- Protect heritage where appropriate
- Maintain and enhance community assets

POTENTIAL BENEFITS AND INCENTIVES

Benefits for Occupants

- More comfortable and accessible buildings and facilities
- Cohesive and supportive communities
- Reduced transport costs
- Happier community and home environment
- Nurturing environment
- Satisfaction that occupier is reducing ecological footprint
- Healthy indoor environment and better community infrastructure can offer health benefits
- Less time commuting in car in traffic
- More affordable more sustainable housing
- Enhanced marketability and property value

Benefits for Local, State or Federal Government

- Can facilitate greater population growth through more efficient use of limited resources
- More attractive and sustainable city/shire/state
- Helps raise community awareness of government's efforts to enhance sustainability
- Helps raise community awareness of the benefits of cohesive and diverse community
- Cohesive and supportive communities
- Less dislocation due to less need to move to new areas
- Increased private sector investment in better community design and facilities (reduced costs for council but better outcomes)

Benefits for Developers

- Marketing advantages through quality product and EnviroDevelopment promotion
- Assists in explaining benefits of design features etc. to potential purchasers
- Reduced approval/assessment times
- Improved corporate image
- Increased Local Government recognition of the merit of community attributes, facilities and considerations of project

REQUIREMENTS

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|--|
| <p>6.1 ESSENTIAL ACTIONS</p> <p>Achieve the requirements or at least five out of six of the following sections:</p> <ul style="list-style-type: none"> • Consultation (6.2) • Transport (6.3) • Community design (6.4) • Local facilities (6.5) • Safe, accessible housing (6.6) • Indoor environment quality (6.7) | <p>Meet the evidence requirements of the relevant sections.</p> |
| <p>6.2 CONSULTATION</p> <p>Must meet all requirements for this section.</p> <p>6.2.1 Evidence of efforts to understand and consider the wishes of the local community including traditional owners.</p> <p>6.2.2 Measures to raise awareness of relevant parties, beyond regulatory requirement. This could be simply through an appropriate on-site billboard, an appropriately targeted letter drop or an open meeting for example. Note: this will mean different measures depending on the level of assessment required i.e. code, impact etc.</p> <p>6.2.3 Evidence that community feedback has been considered and incorporated where feasible and appropriate.</p> <p>6.2.4 Consideration and appropriate preservation and / or recognition of indigenous and post-European cultural heritage. Note: if the development occurs within an area already zoned for that use (for example an industrial designation under a planning instrument) appropriate evidence shall be provided that the development complies with that zoning and is keeping with the intention of the planning instrument. Evidence of community consultation associated with the relevant planning instrument would be of assistance.</p> | <p>Statement from the developer stating how the requirements have been met.</p> <p>Community consultation plan (2-3 pages should suffice).</p> <p>Concise report outlining methods and results of research on local community wishes and how they have been considered in the development.</p> <p>Evidence of measures to raise awareness e.g. photo of billboard and statement about timing and duration that it was visible, evidence of public meeting/s and attendance, evidence of letter drop, evidence of relevant phone calls.</p> <p>Evidence of recognition and protection or considerate reuse of cultural heritage sites or structures (and artifacts) if applicable and in keeping with advice from traditional owners, long-term locals or historical advisors. This could include:</p> <ul style="list-style-type: none"> • Evidence of voluntary liaison with traditional owner groups, if such a group can be identified, and the consideration of Indigenous cultural values in the processes, design and construction of the development. • Evidence of consideration of significant Post European cultural heritage, such as retaining significant trees, fences, old machinery and structures of significance, interpretive signage, research of site history and publication, promotion and incorporation in the design of same, naming of elements etc. |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|--|
| <p>6.3 TRANSPORT</p> <p>RESIDENTIAL</p> <p>Must achieve at least two of the following options:</p> <p>6.3.1 Bicycle Parking</p> <p>6.3.1.1 Bicycle parking is provided for residents/employees and visitors, etc. For multi-unit dwellings, there should be provision of at least 1 bicycle space per dwelling provided for residents and 1 space per 5 units provided for visitor parking. Detached houses would require at least 2 bicycle parks per dwelling. Commercial developments should provide adequate secure bicycle parking for employees.</p> <p>6.3.1.2 Bicycle parking is provided within a secure part of the building or in a secure part of the yard, where they can be locked securely and protected from the elements, such as lock up carpark areas or the basement of multi-unit residential or office buildings. Bicycle parks must also be arranged so that parking and unparking manoeuvres will not damage adjacent cars and bicycles.</p> <p>6.3.1.3 Visitor bicycle parking is placed in public view, easily accessible from the road and arranged so that parking and unparking manoeuvres will not damage adjacent cars and bicycles.</p> <p>6.3.2 Pathways</p> <p>Provide connecting, safe, attractive, well-lit and efficient walking and cycling pathways running wholly in public spaces (including streets and open spaces), directly connecting residential and commercial areas to local facilities and providing links between areas. Also connect with paths in neighbouring areas and provide appropriate bike parking at public transport stops and community facilities. Paths should have some areas of shade and shelter and seating.</p> <p>6.3.3 Public Transport</p> <p>Locate development such that it will have good access (e.g. accessible pathways and bikeways) to public transport. This could be shown through:</p> <p>6.3.3.1 Higher density or 1.5 times the average density of the development within 500 metres of a transport stop with at least 5 services per weekday (by the time the development is 50% occupied) to local facilities or other service centres or connecting transport systems. Direction signage to public transport stops is provided at key locations.</p> <p>6.3.3.2 75% of dwellings within 500 metres, of a transport stop (bus, railway, ferry etc.) with at least 5 services per weekday (by the time the development is 50% occupied) to local facilities or other service centres or connecting transport systems. Direction signage to public transport stops is provided at key locations.</p> <p>6.3.3.3 Provision of community transport network such as car pool, community minibus to facilities.</p> <p>6.3.3.4 Public transport subsidy or vouchers or similar.</p> <p>6.3.4 Working From Home</p> <p>Facilities to encourage working from home could include:</p> <p>6.3.4.1 Communication technology and wiring e.g. fast internet facilities.</p> <p>6.3.4.2 Floor plate and building design to facilitate office.</p> <p>6.3.4.3 Adequately equipped community centre.</p> | <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> <p>Evidence of existing transport location/s and frequency of service together with details of proposal to council and negotiations to date.</p> <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>6.3 TRANSPORT (Cont.)</p> <p>INDUSTRIAL/COMMERCIAL/OTHER</p> <p>Must achieve at least two points from the following options:</p> <p>6.3.5 Bicycle Parking</p> <p>6.3.5.1 Adequate and secure bicycle parking is provided for employees. Bicycle parks must also be arranged so that parking and unparking manoeuvres will not damage adjacent cars and bicycles. (one point)</p> <p>6.3.6 Pathways</p> <p>6.3.6.1 Provide connecting, safe, attractive and efficient pathways running wholly in public spaces (including streets and open spaces). Also connect with paths in neighbouring areas, properties and facilities etc. Paths should have some areas of shade and shelter and seating. (one point)</p> <p>6.3.7 Public Transport</p> <p>Locate development such that it will have good access to public transport. This could be shown through:</p> <p>6.3.7.1 Development is within 500m of a transport stop with at least 5 services per weekday to local facilities or other service centres or connecting transport systems. (two points)</p> <p>6.3.7.2 Development is within 1km of a transport stop with at least 5 services per weekday to local facilities or other service centres or connecting transport systems (one point)</p> <p>6.3.7.3 Locate so that greater than 50% of employees or other occupants are within 2km of public transport with at least 5 services per weekday by the time the development is 50% occupied (one point).</p> <p>6.3.8 Shared Transport</p> <p>6.3.8.1 Provision of community transport network such as car pool, community minibus to facilities. (one point)</p> <p>6.3.8.2 Public transport subsidy or vouchers or similar. (one point)</p> <p>6.3.8.3 Provision of a shared transport system to cater for transport needs such as for those employees involved in shift work. (one point)</p> <p>6.3.8.4 Provision is made for parking spaces which are designed and labelled for small vehicles (2.3m wide and 5.0m long). (one point)</p> | <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> <p>Evidence in plans, and statement from engineer or masterplanner or developer stating how the requirements have been met.</p> <p>Evidence of existing transport location/s and frequency of service together with details of proposal to council and negotiations to date.</p> <p>Evidence in plans and statement from developer stating how the requirements have been met.</p> |
| <p>6.4 COMMUNITY DESIGN</p> <p>Design and community structure to encourage a safe environment and reduce crime and encourage positive interaction between residents /employees and other local people using the area.</p> <p>Note: Relevant development type/s are stated in brackets as a guide.</p> <p>This should include at least six of the following:</p> <p>6.4.1 (Residential/precinct) 50% of houses overlooking public space (not just road). (Note: 'public space' is taken to mean land that is publicly accessed and 'overlook' is taken to mean having clear line of sight from within the building). This is to enhance community networking, passive surveillance and may improve the views from living areas.</p> <p>6.4.2 (All) Central facilities (e.g. recreation facilities, shops, café, restaurants, town hall, gardens, BBQ facilities etc.).</p> <p>6.4.3 (All) Community communication system (e.g. intranet, newsletter, community notice board).</p> <p>6.4.4 (All) Provision of community structures e.g. body corporate to run community facilities, community title, club, organisation, committee etc. Significant efforts must be made to ensure the longevity of such community bodies.</p> | <p>Evidence in plans and statement from masterplanner or developer.</p> <p>Must also show evidence of mechanisms in place for ongoing maintenance beyond the development and sales stages.</p> |

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|---|---|
| <p>6.4.5 (Residential/precinct) Significant diversity of housing types including a mix of dwelling sizes (e.g. number of bedrooms) and/or densities of housing.</p> <p>6.4.6 (Residential/precinct) At least 10% affordable housing or land (less than 70% of the median price of all the other houses or blocks of land in the development or costing less than 30% of the median local income in either rent or repayments for both house and land). Affordable housing must be interspersed with other housing not in a group together or isolated from other housing.</p> <p>6.4.7 (Residential/precinct) Community development officer.</p> <p>6.4.8 (All) Strategy to unite community through unique assets or attributes of the area.</p> <p>6.4.9 (All) Other evidence of design consideration and encouragement of community spirit and networks.</p> <p>6.4.10 (All) Design for crime prevention, according to Crime Prevention Through Environmental Design (CPTED) or other accepted principles.</p> <p>6.4.11 (All) Where fences are provided (or boundary or area is reasonably likely to be fenced) it is ensured that there are (or will be) no non-transparent or non-permeable fences higher than 1m at rear or side boundaries.</p> <p>6.4.12 (All) Where fences are provided (or boundary or area is reasonably likely to be fenced) it is ensured that there are (or will be) no non-transparent or non-permeable fences higher than 1m at front of property (or where the property links to public space if this is not at the front).</p> <p>6.4.13 (Residential/precinct) Development layout is designed to encourage interaction between members of the population. For example, property has rear lanes with garages not at the front of the property while the front of property is designed (and fences reduced) to encourage interaction.</p> <p>6.4.14 (Industrial) Diverse employment opportunities and encourages local employees.</p> <p>6.4.15 (Industrial) Incorporation of scenic amenity (e.g. landscaping, covered areas etc.) within the site, providing opportunities for break-out areas for employees.</p> <p>6.4.16 (Industrial) Encouragement of interaction within and between properties and local services, provided through linkages (e.g. pathways), transport (shuttle services), incentives (e.g. discount vouchers, events).</p> <p>6.4.17 (Industrial) Development encourages tenants with a similar theme e.g. sustainably manufactured materials.</p> <p>6.4.18 (Industrial) Environmental induction incorporated in tenant leases and contracts for employees and tenants.</p> <p>6.4.19 (Industrial) Development encourages co-location of symbiotic industries (i.e. industrial ecology concept – where one business uses another business' by-products).</p> <p>Note: Community facilities must be situated in desirable locations.</p> | |

Note: Drafted with reference to LEED ND, Brisbane City Council Sustainable Development Incentives Policy (draft), THG EcoIndex.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>6.5 LOCAL FACILITIES</p> <p>RESIDENTIAL / COMMERCIAL / OTHER</p> <p>Locate near (such that 75% of residences/workplaces are within 2km) or provide at least five of the following local services. Local facilities should be co-located near public transport stops and pathways.</p> <p>INDUSTRIAL</p> <p>Locate near (such that the development is within 2km) or provide at least three of the following local services.</p> <p>6.5.1 Employment opportunities for either 100 people or 50% of the projected number of dwellings, whichever is the lesser</p> <p>6.5.2 Newsagent</p> <p>6.5.3 Grocery/corner store</p> <p>6.5.4 Primary school</p> <p>6.5.5 Secondary school</p> <p>6.5.6 Kindergarten, preschool, or childcare</p> <p>6.5.7 Medical practice</p> <p>6.5.8 Chemist</p> <p>6.5.9 Specialty stores</p> <p>6.5.10 Cafés and/or restaurants</p> <p>6.5.11 Parks and open space</p> <p>6.5.12 Playground and/or recreation facilities</p> <p>6.5.13 Community centre</p> <p>6.5.14 Public transport hub</p> <p>6.5.15 Bank or cash machine</p> <p>6.5.16 Post office</p> <p>6.5.17 Emergency Services (including rural fire brigade, ambulance, police etc.)</p> <p>6.5.18 Communication centre or business centre</p> <p>6.5.19 Information exchange medium e.g. community notice board, newsletter, website</p> <p>6.5.20 Community portal (ADSL or better facilities)</p> <p>6.5.21 Community accessible facilities / spaces e.g. rooms, public areas, education centres etc.</p> <p>6.5.22 Educational facility or material e.g. interpretative signage, tours, open days, brochures.</p> | <p>Evidence in plans, and statement from engineer or masterplanner and developer.</p> <p>Must also show evidence of mechanisms in place for on-going maintenance beyond the development and sales stages.</p> |
| <p>6.6 SAFE AND ACCESSIBLE BUILDINGS</p> <p>Must achieve at least one of the following options:</p> <p>RESIDENTIAL/OTHER</p> <p>6.6.1 Safe and Accessible Checklist</p> <p>At least 50% of dwellings/offices must achieve 12 points or more under the EnviroDevelopment Safe and Accessible Checklist (comparable to the social section of the BCC Sustainable Home Checklist Part 3, 4, 5).</p> | <p>Completed EnviroDevelopment Safe and Accessible Checklist (adapted from the Brisbane City Council Sustainable Home Checklist Part 3, 4, 5), evidence in plans, and statement from architect or building designer and developer.</p> |

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|--|---|
| <p>6.6.2 Comparable Efforts for Safe Accessible Community</p> <p>Show evidence that significant efforts have been made to ensure that individual dwellings/workplaces and/or local buildings (e.g. community facilities where applicable, recreation clubs, community centres etc.) will be comfortable, accessible, safe and appropriate for a variety of people, including aging or disabled people and children. This can also include measures to reduce noise or light pollution.</p> <p>COMMERCIAL / INDUSTRIAL</p> <p>6.6.3 Comparable efforts for safe accessible community</p> <p>Show evidence that significant efforts have been made to ensure that buildings (sheds, offices, factories etc.) will be comfortable, accessible, safe and appropriate for a variety of people, including aging or disabled people and children.</p> | <p>Evidence in plans, and statement from architect or building designer and developer.</p> <p>Evidence in plans, and statement from architect or building designer and developer.</p> |
| <p>6.7 INDOOR ENVIRONMENT QUALITY</p> <p>RESIDENTIAL/COMMERCIAL/OTHER</p> <p>Must meet requirements for at least two of the following options:</p> <p>6.7.1 Good ventilation is provided to all dwellings, offices and community facilities where applicable. This can be shown through any of the following options:</p> <p>6.7.1.1 Evidence that natural ventilation will be good and that noise and security issues are unlikely to cause occupants to keep windows closed.</p> <p>6.7.1.2 Evidence of good ventilation in mechanically ventilated buildings, could include:</p> <ul style="list-style-type: none"> The fans and ductwork are sized to meet greater than 20% improvement on the outside air requirements required by current Australian Standards, or Locating outdoor air intake away from air pollutant sources, (such as traffic) so that air supply is designed to meet current Australian Standards requirements, or Removing pollutants from local outdoor sources through the use of an appropriate filtration system capable of achieving ≥ F8 filter performance rating or equivalent in accordance with current Australian Standards or equivalent improvement in air quality. <p>6.7.1.3 Use of acoustic ventilation systems to allow for natural ventilation without compromising noise attenuation.</p> <p>6.7.2 Kitchens: At least 60% of kitchens in the development have a rangehood which is flued to the outside of the building on all gas ovens and/or kitchens are effectively naturally ventilated or mechanically ventilated with dedicated exhausts.</p> <p>6.7.3 Noise: If provided, air conditioning is located and shielded so as to prevent noise nuisance to occupiers of residential buildings or minimise noise transmission from external sources (e.g. traffic noise) i.e. design buildings so that the bedrooms, living rooms and offices are designed to be capable of achieving the satisfactory noise levels recommended by AS2107 -2000: Acoustics – Recommended design sound levels and reverberation times for building interiors.</p> | <p>Evidence in plans, or covenant or body corporate design guidelines and statement from engineer or masterplanner and developer stating how the requirements have been, or will be, met.</p> |

Note: Drafted with reference to LEED ND, Brisbane City Council Sustainable Development Incentives Policy (draft), THG EcolIndex.

| Criteria | Notes on evidence to be provided to Board of Management for approval prior to certification as an EnviroDevelopment |
|---|--|
| <p>6.7.4 Toxic fumes: non-toxic materials are used to create a healthy indoor environment. This could include choosing two (2) or more of the options below:</p> <p>6.7.4.1 Water based low-VOC paints</p> <p>6.7.4.2 Carpets that are low-VOC</p> <p>6.7.4.3 Carpets are mechanically fixed</p> <p>6.7.4.4 Low VOC, non-carpet floors</p> <p>6.7.4.5 Adhesives and sealants that are low-VOC or no adhesives/ sealants used</p> <p>6.7.4.6 Composite wood product is low emission formaldehyde or no composite wood product used</p> <p>6.7.4.7 Wood products are stained with wood treatments that are natural, such as linseed oil or beeswax polish</p> <p>6.7.4.8 Reduced use of formaldehyde products</p> <p>INDUSTRIAL</p> <p>Must meet requirements for at least one of the following options:</p> <p>6.7.5 Good ventilation is provided to all buildings, offices and factories. This can be shown through any of the following options:</p> <p>6.7.5.1 Evidence that natural ventilation will be good and that noise and security issues are unlikely to cause tenants / employees to keep windows closed.</p> <p>6.7.5.2 Evidence of good ventilation in mechanically ventilated buildings, could include:</p> <ul style="list-style-type: none"> • The fans and ductwork are sized to meet greater than 20% improvement on the outside air requirements required by AS1668.2-2002, or • Locating outdoor air intake away from air pollutant sources, (such as traffic) so that air supply is designed to meet AS1668.2-2002 requirements, or • Removing pollutants from local outdoor sources through the use of an appropriate filtration system capable of achieving ≥ F8 filter performance rating in accordance with AS1324.1-2001 or equivalent improvement in air quality. <p>6.7.6 Noise: If provided, air conditioning is located and shielded so as to prevent noise nuisance to occupiers of nearby properties or minimize noise transmission from external sources (e.g. traffic noise) i.e. design buildings so that they are capable of achieving the satisfactory noise levels recommended by AS2107 -2000: Acoustics – Recommended design sound levels and reverberation times for building interiors.</p> <p>6.7.7 Toxic fumes: non-toxic materials are used to create a healthy indoor environment. This could include choosing two (2) or more of the options below:</p> <p>6.7.7.1 Paints that are water based low-VOC paints</p> <p>6.7.7.2 Carpets that are low-VOC</p> <p>6.7.7.3 Carpets are mechanically fixed</p> <p>6.7.7.4 Low VOC, non-carpet floors</p> <p>6.7.7.5 Adhesives and sealants that are low-VOC or no adhesives/ sealants used</p> <p>6.7.7.6 Composite wood product is low emission formaldehyde or no composite wood product used</p> <p>6.7.7.7 Wood products are stained with wood treatments that are natural, such as linseed oil or beeswax polish</p> <p>6.7.7.8 Reduced use of formaldehyde products</p> | <p>Evidence in plans and statement from engineer or masterplanner and developer stating how the requirements have been, or will be, met.</p> |

Safe, Accessible Checklist

| WINDOWS, DOORS AND WALKWAYS | |
|--|---------------------------|
| The units / houses / commercial buildings have the following features: | Number of points (circle) |
| All entries into the house / commercial building or from public spaces into the unit are level (maximum of 10mm in change of level). | 1 |
| In addition to all entries being level (as above), all entries can be reached along an accessible path (i.e. with a maximum gradient over distances less than 1.5 metres of 1:8 and maximum gradient of 1:14 over longer distances, no more than 10mm change in entry threshold levels, passageways at least 1200 mm wide and doorways at least 870mm wide) (Do not circle this point if all entries are not level). | 1 |
| Entry thresholds to all rooms within the unit / house / commercial building are level. | 3 |
| All doors are a minimum 870 mm wide and door handles and hardware are between 900 mm and 1100 mm above the finished floor level. | 3 |
| No hallway is narrower than 1200 mm. | 2 |
| The front path leading into the building has all the following features: <ul style="list-style-type: none"> • Wide (minimum 1200 mm) • Level (maximum cross fall of 1:40) • Gently ramped (maximum slope 1:14 along the path of travel) • With no steps from the driveway or street footpath. | 1 |
| All swing doors have door catches to secure them in open position. | 1 |
| All internal doors of the unit / house / commercial building have lever door handles, push plates or pull handles. | 1 |
| All entry doors including the front door to the building and individual units have lever door handles, push plates or pull handles or automatic operation. | 1 |
| A window, no higher than 600 mm from the floor (measured from the sill), is in each bedroom to allow people to look outside when lying on a bed. | 1 |
| All windows and external doors of the unit / house / commercial building are fitted with insect screens. | 1 |
| External doors are fitted with security screen doors . | 2 |
| Windows that are reasonably reached without a ladder are fitted with security grilles, and all other windows have features to prevent a small child from falling through . | 2 |
| Windows are fitted with key-operated window locks that are keyed alike. | 1 |
| External doors to the unit / house / commercial building and any attached garage are made of solid core construction, are fitted with a double cylinder deadlock and are keyed alike. | 1 |
| Glass panels located within 1 metre of the front door of the unit / house, including glass panels within the door, are Grade A safety glass or strengthened using security film. | 1 |

| | |
|---|----------------------------------|
| The front door of the unit / house is fitted with a peephole, view hatch, laminated glass or Grade A safety glass panels that provide 180 degree field of vision. | 1 |
| An audio/video intercom is provided at the street entry to each unit / house with remote door/gate release. | 1 |
| KITCHEN | |
| The units / houses / offices have the following features: | Number of points (circle) |
| Built-in space for separate bins for general waste, organic scraps and recyclables | 2 |
| The main kitchen has a minimum clear space of 1550 mm distance in front of all benches, storage and fixed appliances and has minimum features and dimensions as shown in Figure 7. | 1 |
| The main kitchen does not double as a passageway or through-way to access other rooms in the unit / house, to avoid the likelihood of dangerous collisions | 1 |
| The unit / house is eligible for one point if it has: 1. a stove top located away from cupboard ends, drawers, doors and windows, with adequate space to turn pot handles away from the front, and 2. the oven is located off the floor for ease of access and is adjacent to bench space so hot items do not need to be carried long distances. | 1 |
| The units / houses / offices have the following features: | Number of points (circle) |
| Gas oven that is flued to outside the building (not roof space) | 1 |
| Gas cook top with a range hood flued to the outside of the building (not roof space) | 1 |
| BATHROOM | |
| The units / houses / offices have the following features: | Number of points (circle) |
| A bathroom with the following features: • The bathroom can be reached along an accessible path (from the street or car parking, and • A basin that is semi-recessed, wall hung or pedestal style, and • A hobless (step-free) shower with minimum features and dimensions as shown in Figure 8. | 3 |
| A toilet and basin with the following features: • The toilet and basin are semi-recessed, wall hung or pedestal style, and • The toilet and basin can be reached along an accessible path from the street or car parking, and • The toilet has minimum features and dimensions as shown in Figure 9. | 2 |
| All fittings (e.g. soap holders, towel rails) in the bathrooms are capable of supporting a person's body weight (minimum 112 kg) | 1 |

Source: Brisbane City Council, Sustainable Home Checklist.

Note: To qualify for this section based on recognition of safe and accessible design of offices and commercial buildings the development must primarily or significantly be a commercial development..

Figure 7: Kitchen design and fitout

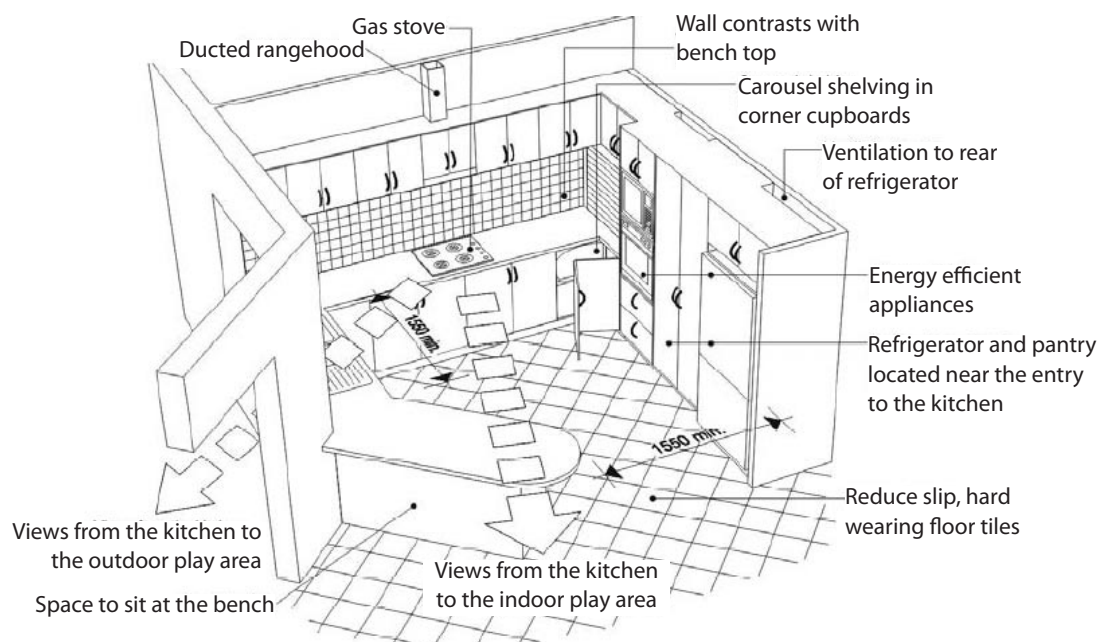


Figure 8: An accessible toilet

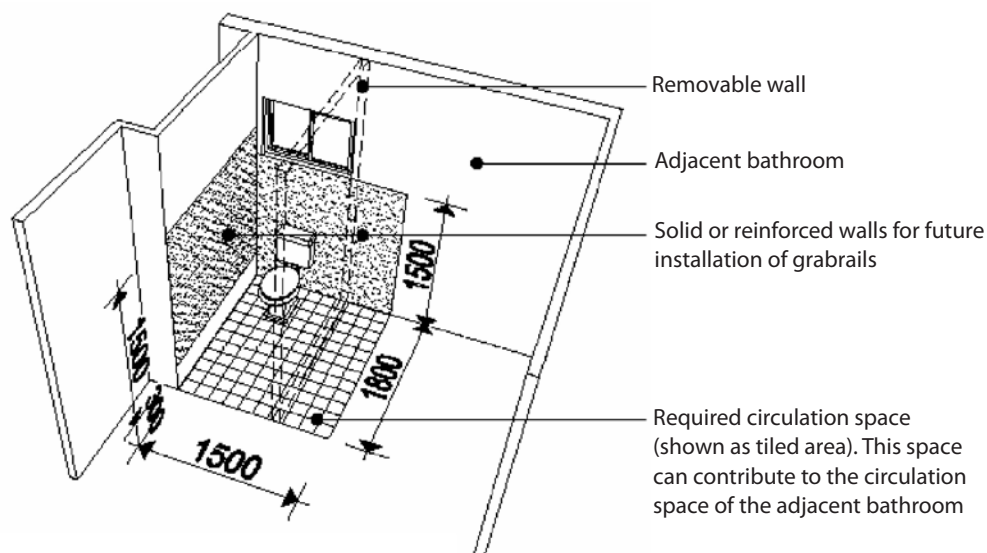
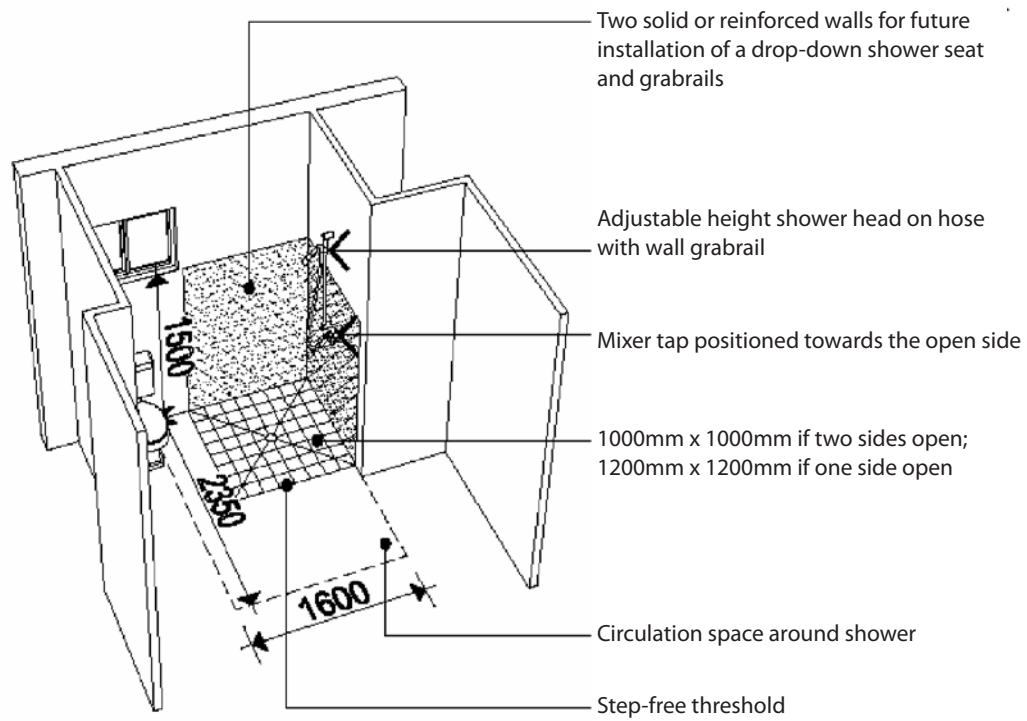


Figure 9: An accessible shower



Note: Figures 7, 8 and 9 have been reproduced with kind permission from the Queensland Department of Housing.



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