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| BCA Green Lease Toolkit: |
| Office Green Schedule 2014 |
| Version 1.0 |



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Introduction:

The BCA have created a green lease toolkit to aid landlords and tenants to work together to improve their environmental performance over the life of the building in which they manage or occupy.

The environmentally friendly leasing arrangement or ‘Green Lease’ in short, is an agreement between landlord and tenant which sets out environmental objectives on how the building is to be improved, managed and/or occupied in a sustainable manner. This both yields cost savings in energy and water which can be shared among parties and provides a better indoor office environment.

The Green Lease acknowledges the possible synergies in cooperation between building owners and tenants (and any relevant service providers and contractors). It addresses traditional structural barriers to implementation, such as split incentives and interests between building owners and tenants, by ensuring that the parties with influence over key aspects of environmental performance obtain some benefit from implementing the improvements. For example, by installing energy efficient lighting that generate less heat, a landlord can benefit from a reduced overall air-conditioning energy consumption while a tenant can benefit from the reduced energy bill for lighting usage.

The Green Lease improves transparency and accountability through providing an agreement between both landlord and tenant ensuring that the parties identify and address problems promptly and efficiently together.

The Office Green Schedule provides a list of standard clauses that contain specific provisions for monitoring and improving energy efficiency, water efficiency, outdoor and indoor air quality, sustainable material and waste management, through a target based approach applicable to office buildings and tenants. These standard provisions are fully editable to suit your building or individual tenant’s context. The schedule can form part of a memorandum of understanding, or an arrangement between landlord and tenant to adopt procedures to ensure the building operates to the agreed level. Or be an enforceable schedule that forms a part of the lease agreement, with penalties for noncompliance.

The Green Schedule should be read in conjunction with the relevant BCA Green Mark criteria.



BCA Green Mark, and BCA Green Mark logo © Building and Construction Authority.

*Users are free to use and adapt the Green Schedule clauses as required at their own risk. BCA shall not be liable for any damage or loss of any kind caused as a result (direct or indirect) of the use of the Green Schedule clauses, including but not limited to any damage or loss suffered as a result of reliance on the Green Schedule clauses.*

*Users should seek relevant professional and legal advice before including the clauses or the schedule within their lease, or tenancy agreements.*

Green Schedule for Office Buildings:

**This schedule is provided for Landlords and tenants to edit the performance levels and clauses and content as they see fit based on their individual contexts. Where green highlighting occurs in the clause this is for the user to edit or insert their own values. Parties are encouraged to adopt as many clauses as possible to substantially improve the environmental performance of the building in a collaborative manner. In addition to this guide many international guidance notes and case studies can be found in the accompanying green lease guide*.***

**General:**

The landlord and tenant(s) are committed to manage, operate and occupy the building and premises to promote environmental sustainability, through energy efficiency improvements, positive behavioural changes and healthy practices. This schedule forms a <*memorandum of understanding / mutual performance and disclosure agreement / part of the lease agreement with penalties for non-conformity\*1* >

*\*1Select one refer to the Green Lease guide for more details*

**Section A: Suggested Minimum Standards (Landlord)**

*This section details the key ingredients that should be considered as a part of the green lease adoption. Performance requirements should be tailored for the building context and reached collaboratively with the relevant stakeholders. Reference should be paid to ‘Section E’ of this schedule. There will need to be a form of Building Management committee – however the extent of this will vary dependant on building and tenant mix.*

A1 Certification:

1. The Tenant agrees that the Landlord shall be entitled to operate, manage and maintain the Building so as to <*achieve / retain*> at least the BCA Green Mark <*Insert Rating\*2*> for Non Residential Buildings or the future applicable BCA Green Mark certification standard. The landlord commits to maintain this level of certification <*during the entire lease period / certification period / other please specify*>

*\*2For public sector projects please refer to the most recent FCM issued by MOF which details the minimum environmental performance of the public sector under PSTLES (Public Sector Take the Lead in Environmental Sustainability)* To <*achieve / maintain*> the Public Utilities Board’s (PUB) Water Efficient Building Certification <*Basic/Silver/Gold>* The landlord commits to maintain this level of certification <*during the entire lease period / certification period / other please specify*>

1. **[suggested]** The office building <*operator* or *landlord*> to be ISO 14001 or ISO 50001 and SS 577 Certified

A2 Management of Energy Use

1. Monitoring and reporting of base building consumption with targets set for continuous improvement < *x kWh\*3 or x % over insert period* >

*\*3The kWh can be actual savings which are captured by the electricity consumption tracking of the entire building, or via a demonstrated savings approach where office activities are expanding or intensifying. Demonstrated savings are calculated savings based on equipment efficiency improvements.*

1. Provide tools to support the Tenant to calculate electricity consumption in the design using the ‘services calculator\*4’

*\*4 BCA will aim to provide a simple spreadsheet based calculator for industry use. It is encouraged that the landlord build upon this simple calculator to improve the usability and apply to their tenants needs*

1. Installation of metering to separate and monitor the building energy usage such as lighting, receptacle (plug) loads and ACMV systems.

A3 Building Management

1. Maintenance contracts to specify all **paints, sealants, cleaners and adhesives are low VOC** in all areas under direct control of the landlord and to be certified under SGLS or SGBC products *or equal and approved*.
2. Provision of private meters and at least <*weekly/monthly*> monitoring of major base building water uses such as cooling towers, common toilets and irrigation.
3. Tools to support tenant to calculate design water consumption and to provide up-to-date information and advice on water fittings, equipment.
4. A ‘Tenant Construction and Fit-out Manual’ & procurement guidelines to be provided which includes sustainable materials schedule and green specifications. The guide shall detail the materials that **should not be permitted** to be used within the building
5. Environmental Management Plan formed in collaboration with the tenants to set and review the targets set in this schedule.
6. Submission of Water Efficiency Management Plan to PUB on an annual basis.

**Section B: Additional Standards (Landlord)**

*This section provides a list of clauses that are encouraged to be implemented where possible. These clauses can be edited, removed or substituted with other clauses that are deemed relevant to the building.*

**Resource Management**

B1 Electricity Use

1. Landlord to use only energy efficient and environmentally responsible luminaries, examples are LEDs, low power T5 fluorescent tubes, or Compact fluorescent luminaries.
2. Landlord to incentivise low energy use by providing electrical billing at below the prevailing SP Services quarterly Low Tension non-domestic tariff rate OR by giving a rebate. Target consumption to be defined and agreed upon by both landlord and tenant.

B2 Efficient water management:

1. **[Recommended]** Use of water efficient fittings rated “Excellent” under the Water Efficiency Labelling Scheme (WELS), where applicable.

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| **FITTINGS** | **✓✓✓****EXCELLENT RATING** |
| **Shower Taps, Mixers & Showerheads (L/min)** | **5 or less** |
| **Basin Taps & Mixers (L/min)** | **2 or less** |
| **Sink/Bib Taps (L/min)** | **4 or less** |
| **Flushing Cisterns – Dual Flush Type (L/flush)** | **3.5 or less (full flush)****2.5 or less (low flush)** |
| **Urinals & Urinal Flush Valve (L/flush)** | **0.5 or less****Or waterless urinals** |
| **Washing Machine(L/Kg)** | **9 or less** |

1. Water efficiency index averaging not greater than <*Insert value*> litres per person per day (l/p/d).
2. Use of non-potable water (eg NEWater, rainwater, etc) for non-potable use wherever possible.
3. Use of drought resistant plants that require minimal irrigation.
4. Use of cooling tower water treatment system which can achieve 7 or better cycles of concentration at acceptable water quality.

B3 Efficient Waste Management

1. **[Recommended]** Engage a waste contractor to provide recycling programmes and measures for the building that involves the tenants.
2. A waste diversion rate not less than <*insert value*>% per year

B4 Facility Management

1. **[Recommended]** <*Trained* or *Certified*> <*Green Mark Facilities Manager / Professional (GMFM / GMP-EB), or Singapore Certified Energy Manager (SCEM)*> as a part of the Base building’s facility management team.

**LANDLORD’S SUPPORT TO THE TENANT**

B5 Assistance in tenant calculations and compliance checks

1. **[Recommended]** Assistance in assessment of the overall power consumption, including lighting design review, and providing design advice for the Tenants as a part of their fit out / renovation
2. **[Recommended]** Provide support to the tenant during operations to reduce the tenant operational consumption of energy and water.

B6 Monitoring and reporting of energy, water and waste

1. Provide <*quarterly / annual*> assessments of tenant electricity consumption based upon tenant submissions
2. Regular monitoring and <*quarterly/annual*> reporting of base building water use with target to reduce consumption by <*x% or x m3/yr>*
3. Regular reporting to tenants on the building’s environmental performance, building rating system achievements and progress on other targets set. Publish an annual report on Tenant Environmental Performance and Base building performance
4. **[Recommended]** Regular monitoring and reporting of tenant operations to identify opportunities to eliminate waste and maximise recycling.
5. Waste audit conducted annually.

B7 Tenant engagement and education programmes

1. **[Recommended]** An active Building Management committee representative of the tenants and the landlord (see Section E)
2. Sustainability education programme provided to the building occupants and Facilities managers.
3. Formal mechanisms for gathering tenant feedback (including thermal comfort)

**GOOD PRACTICES**

B8 Haze resilience and IAQ measures

1. **[Recommended]** Buildings fresh air treatment to be retrofitted to be ‘haze’ resilient, or strategies utilised to minimise exposure to fine particulates (≥PM 2.5)
2. Monitoring systems to ensure optimal thermal and indoor air quality to **SS 554:2009** or later standards
3. Ventilation and Air conditioning systems to be regularly tested for contaminants.
4. Indoor CO2 levels compared to outdoor CO2 levels of not greater than 700 Parts Per Million (“PPM”) measured in accordance with SS 554: 2009 (or later) or equivalent standard as it may be amended or replaced from time to time.

B9 Base building control systems and calibrated monitoring

1. Regular maintenance and recalibration of base building services (such as photo-sensors, motion sensors and CO2 sensors, dampers, VSD’s / VFD’s where utilised)
2. BMS system regularly calibrated to effectively control, monitor and optimise the building’s mechanical and electrical equipment including (but not limited to) ventilation systems, lighting, power systems, and fire systems.
3. Implement a fault reporting and monitoring system to allow staff and tenants to report faults and water leaks and also conduct regular inspections for water leaks and other base building performance issues.

B10 Centralised waste strategies for recycling

1. Provide facilities that are easily accessible and dedicated for separate storage and collection of organic wastes, recyclables (paper, cardboard, plastic containers, glass, and metals), toner cartridges, light tubes, batteries, computers and other electronic devices.

B11 Cleaning Services

1. **[Recommended]** Cleaning contract to stipulate the use of natural, solvent free and hydrocarbon free cleaning products labelled where applicable by SGLS or SGBC or equal and approved.
2. Use of low environmental impact disposable janitorial paper and rubbish bags.
3. Building exterior and hardscape maintenance contracts specify environmentally sensitive and low impact practices, including non-toxic, non-hazardous pest control measures.
4. Training programmes for cleaners with regard to specialist features, (e.g. waterless urinals)

B12 Reducing Car Dependency:

1. Adequate provision of secure and sheltered bicycle storage
2. Showers, changing rooms and lockers for cyclists
3. For sites with limited access to public transport, provision for shuttle services to nearby transport nodes

**Section C: Suggested Minimum Standards (Tenants)**

*This section details the key ingredients that should be considered as a part of the green lease adoption. Performance requirements should be tailored for the tenant’s office context.*

*The tenant shall share responsibility in the building’s sustainability objectives through participation within the Building Management Committee. The extent of this committee and involvement will vary dependant on building and tenant mix. (Reference should be paid to ‘Section E’ of this schedule)*

C1 Certification:

1. Tenant’s offices to achieve and maintain BCA Green Mark for Office Interior\*5 <*Insert Rating*> award <*within the lease period / at the next retrofit/ in x months*>.

*\*5 For smaller SME office units, or for buildings with tenants that are starting the sustainability journey Green Mark may be substituted with use of the Singapore Environment Council’s Eco Office certification see* [*www.sec.org.sg/ecooffice/*](http://www.sec.org.sg/ecooffice/)

C2 Management of Energy Use

1. Lighting Power Budget to open plan office spaces <*Insert figure\*6*> watts per square meter (W/m2)

*\*6recommended 8 W/m2 or below for a typical office*

1. Lighting Power Budget to meeting rooms and conference rooms < *Insert figure\*7*> watts per square meter (W/m2)

*\*7Recommended 9 W/m2 or below for a typical meeting room / conference room, board rooms may be higher*

1. Lights shall be Energy efficient and environmentally responsible, examples are LEDs, low power T5 fluorescent tubes, or Compact fluorescent luminaries.

C3 Office Management

1. Interior paints, varnishes, sealants and adhesives to be low VOC using natural and water based products where possible.
2. The Tenant shall ensure that all work done within the Premises by the Tenant or its representatives shall be undertaken in accordance herewith and with the Tenant Construction Manual
3. Annual targets for energy, water and waste reduction with tangible results demonstrated.
4. An office CSR policy that commits to engage actively in promoting the social responsibilities of business.

**Section D: Additional Standards (Tenants)**

*This section provides a list of clauses that are encouraged to be implemented where possible. These clauses can be edited, removed or substituted with other clauses that are deemed relevant to the tenant and may vary from tenant to tenant.*

**Resource Management**

D1 Energy Intensity & Usage

1. **[Recommended]** Monitoring and reporting of office consumption with targets set for continuous improvement < *x kWh\*3 or x % over insert period* >

*\*3The kWh can be actual savings which are captured by the electricity consumption of the office taken from the SP power bill / meter reading, or via a demonstrated savings approach where office activities are expanding or intensifying. Demonstrated savings are calculated savings based on equipment efficiency improvements.*

1. The Tenant agrees to limit annual average consumption of electricity within its Premises to <*Insert figure*\*8> Kilowatt hours per square meter per year (kWh/m2/yr)

\*8*recommended 80 kWh/m2/yr or below for a typical office* *Based on BCA Green Mark for Office Interior EEI calculation methodology*

1. Equipment Plug Load – Average <x *W/m2*>

D2 Water Usage:

1. **[Recommended]** Use of water efficient fittings rated “Excellent” under the Water Efficiency Labelling Scheme (WELS)

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| **FITTINGS** | **✓✓✓****EXCELLENT RATING** |
| **Shower Taps, Mixers & Showerheads (L/min)** | **5 or less** |
| **Basin Taps & Mixers (L/min)** | **2 or less** |
| **Sink/Bib Taps (L/min)** | **4 or less** |
| **Flushing Cisterns – Dual Flush Type (L/flush)** | **3.5 or less****(full flush)****2.5 or less****(low flush)** |
| **Urinals & Urinal Flush Valve** **(L/flush)** | **0.5 or less****Or waterless urinals** |
| **Washing Machine****(L/Kg)** | **9 or less** |

1. The Tenant agrees to limit annual average consumption of water within its Premises to <*Insert figure*\*9> litres per person per day (l/p/d), exclusive of consumption within the base Building (e.g. excluding the standard washrooms provided and maintained by the landlord).

*\*9Target to be identified during building operation*

III. Tenant to display signage for reporting of faults at water usage areas within its own premises.

D3 Metering

1. **[Recommended]** Total energy metering as well as separate metering of tenancy lighting, IT rooms and general tenancy power usage (receptacle loads) Use of smart meters where feasible.
2. Provision of private water meters, where applicable and at least <*weekly/monthly*> monitoring of premises’ water usage.

D4 Control systems

1. **[Recommended]** For areas that require cooling beyond the normal operating hours of the central plant, dedicated supplementary cooling shall be installed subject to meet the minimum of NEA <4 or 5 ticks> or if using VRV/VRF high COP ≥ 4 complete with temperature sensors and occupancy sensors to control energy usage. The system must be regularly serviced and maintained to ensure operational efficiency.
2. Air conditioning controls to maintain thermal comfort and good indoor air quality shall be designed for. Temperature to follow SS 554: 2009 or (most up-to-date standard).
3. Enclosed areas to be provided with dedicated thermostat controls (meeting rooms, closed offices, conference facilities.) with auto shut off or ramp down when not in use
4. Lighting control to include occupancy sensors and photo sensors (perimeter lighting) with local overrides. Enclosed spaces to have dedicated light switches and auto switch off when not in use.
5. All control systems to be regularly checked and maintained.
6. Zone the air conditioning with each zone within the office not exceeding 100m2

**Materials & Fit Out**

D5 Office fit out and renovations

1. Internal partitions to be modular and re-usable (>70%)
2. **[Recommended]**Furnishings, furniture and carpets to be SGLS or SGBC labelled or equal and approved containing recycled materials and be low VOC
3. The Tenant shall have regard to the Tenant Procurement Guidelines in procuring furniture, fixtures, materials, supplies and equipment to be brought into the Premises
4. The tenant agrees to recycle or reuse or cause its contractor to recycle or reuse as much as possible any waste created in the demolition of existing Leasehold Improvements or Alterations within the Premises so as to minimise the amount of waste ending in landfill

D6 Office Equipment

1. **[Recommended]** Office policy to ensure that energy efficient settings are enabled on all equipment.
2. Energy efficient computers (preferably laptops) and Low energy LED/LCD monitors
3. Energy Star rating as a minimum requirement for all applicable office equipment
4. Video Conferencing and Teleconferencing facilities to be encouraged

**Good Practices**

D7 Company Policies and procedures:

1. **[Recommended]**Organisational sustainability policy, CSR policy and implementation plan
2. Mechanisms in place to encourage staff accountability, awareness and participation.
3. Display of certification <*Green Mark Plaque / SEC Eco Office Certificate*> or energy performance and water performance data in public areas
4. Annual Office waste audit

D8 Cleaning

1. Tenant shall require that in any cleaning contracts granted directly by it, the cleaning contractor shall use cleaning products certified in accordance with SEC Green Label (SGLS) or SGBC Green Products or approved equivalent.
2. The Tenant shall ensure that any cleaning contracts require the cleaning contractor to comply with elements of the Environmental Management Plan applicable to it. Particularly, any cleaning contracts let by the Tenant in respect of specialised green facilities, such as waterless urinals, shall ensure the cleaning contractor properly understands and is trained on the maintenance of such specialised green facilities
3. Pest control measures specify non-toxic, non-hazardous treatments to indoor and outdoor plants

**Section E: Environmental Assessment and Reporting**

The Landlord and Tenant, acting reasonably and in good faith, agree to cooperate from time to time in determining compliance with the Environmental Objectives as set out in Section A to D herein and in refining such Environmental Objectives from time to time. **A Building Management Committee** representative of the Landlord and Tenant(s) shall be formed and is charged with the responsibility to develop the Environmental Objectives, to implement the objectives, monitor the performance of the building and report periodically on the outcomes. Building Management Committee agree to meet at least <*2 (twice) annually*> in order to determine and discuss the achievement of the Environmental Objectives for the Building and the Premises and any further steps that could be taken to achieve the Environmental Objectives.