

# THE CHINESE UNIVERSITY OF HONG KONG

## Social Responsibility and Sustainable Development Office

### Green Purchasing Guidelines

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## 1. Introduction

### 1.1 *What is green purchasing?*

Green purchasing is also known as green procurement, environmentally-responsible purchasing or environmentally-preferable purchasing. Every item we purchase consumes some of the Earth's resources and generates certain pollution and waste in its resource extraction and transportation, manufacturing, packaging and marketing, use and, finally, disposal. Some products also pollute the indoor environment and have an adverse impact on human health, or cause harm to endangered species. Thus, our consumption behaviour plays a major role in generating all kinds of local and global environmental problems from indoor air pollution to climate change.

While it is best not to purchase items we do not need, where necessary, goods with a reduced negative impact on the environment and human health should be purchased. This is called green purchasing.

### 1.2 *Why should CUHK do green purchasing?*

The Chinese University of Hong Kong (CUHK) seeks to develop **a sustainable campus with a reduced dependency on the Earth's natural resources and a reduction in greenhouse gases emissions per capita** ([\*Campus Master Plan, 2010\*](#)). To achieve this long-term goal, it is necessary for the University to incorporate green practices into its daily operation wherever applicable and practical.

By buying products that are more environmentally-friendly, not only will the University contribute to the improvement of the planet's environment, the CUHK campus environment will also become **safer and healthier for students, staff and contractors**.

As an institution of higher education, CUHK also has the responsibility to foster an environmentally-conscious culture on campus, to inspire students, and staff as well, to put environmental responsibility into action in their own daily lives.

## 2. CUHK's Policy and Guidelines on Green Purchasing

### 2.1 *Green Purchasing Policy*

The [Green Purchasing Policy](#), formulated in 2011, was endorsed by the Committee on Campus Environment (CCE) and the Committee on Campus Sustainability (CCS) (CCE merged into CCS in 2014), and approved by the Administrative and Planning Committee (AAPC). The Policy reflects CUHK's mission to continuously improve the environmental quality of the campus by purchasing and using environmentally-friendly materials and products whenever they meet our cost and performance requirements.

Under this Policy, **University departments (including all academic, research, administrative and support units), as well as University-hired contractors and consultants**, are encouraged to take into account environmental considerations in procuring and purchasing.

### 2.2 *Green Purchasing Guidelines*

The Green Purchasing Policy stipulates that a set of guidelines, together with a list of products suitable for purchase by University departments, contractors and consultants, is to be provided to all staff for guidance.

The purposes of this set of Green Purchasing Guidelines, as endorsed by CCS, include the following:

- Inform all staff members of the University's green purchasing initiative and introduce the concept and benefits of green purchasing.
- List the mandatory 'green actions' to take, including the green specifications to be adopted and the procedures to be followed for tender invitations. A list of **mandatory green products**, which are commonly used items with widely available green options, is given.
- For other products that are also commonly used by the University, provide a list of **recommended green products** for departments, contractors and consultants' reference while making such purchases.
- Share some green purchasing initiatives currently adopted by the major purchasers and tender callers, who are champions of greening the University's purchases, for departments' reference when considering ways to 'green' their purchases.

### 3. Role of Directors/Heads of Departments

To make the Green Purchasing Guidelines a useful reference that helps CUHK achieve the goal to develop a sustainable campus, the directors and heads of departments play an important role. They shall:

- **Inform** all staff members of the requirements stipulated in the Green Purchasing Guidelines. **Provide guidance** to the staff responsible for purchasing if necessary and **ensure compliance** with the requirements.
- **Consider ways** the department can support green purchasing on campus, and **explore opportunities** to purchase more environmentally-friendly options of the products that are commonly used by the department, where possible and economical.
- **Submit good practices, new ideas or suggestions** to the Social Responsibility and Sustainable Development Office (SRSDO).

## 4. Mandatory ‘Green Actions’

### 4.1 Adopt mandatory green specifications for products

Purchasers of individual departments are required to adopt green specifications when purchasing the following items or, if the items are to be purchased on behalf of the University by contractors and consultants, to include the relevant specifications in tender invitations.

The products listed in this section are **mandatory green products**, which are commonly-used items in the University and the exclusive use of them (instead of other ‘less green’ options) will make an impact in greening the University’s purchases as well as the campus environment. These products are categorized in these Guidelines as *mandatory* as all of them come with widely-available, economical green options on the market.

For other products that are also commonly used by the University, but may not have as widely-available green options as those included in this section, a list of **recommended green products** is given in [Appendix A](#) for departments, contractors and consultants’ reference when making such purchases.

#### (i) Paper (A4 and A3)

- Applies to:** A4 and A3 printing or photocopying paper (white) of 75gsm and 80gsm for in-house copying/printing
- Specifications:** 100% recycled, non-chlorine bleached paper<sup>1</sup>
- Effective from:** 2012
- How to purchase:**
- Recycled A3 and A4 (white) paper of 80gsm that meets the green specifications can be purchased from the supplier(s) in the Business Office’s centralized tender.
  - If 75gsm recycled paper is not available, use 80gsm recycled paper in place of 75gsm and 80gsm conventional white paper.
  - Green options *now* available in the tender have been labelled with the text ‘**GREEN!**’.

**Certifications:**



Recycled product logo (usually found on the package)

(‘Environmentally-friendly’ paper in the market is not necessarily the same as ‘recycled paper’. It can also be made of wood pulp from forests managed in ways that minimize ecological damage and large-scale cutting of trees.)

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<sup>1</sup> An old way of bleaching paper with chlorine creates dioxins, a cancer-causing chemical. Dioxin can be absorbed into human bodies when people come in contact with paper products, or when people consume water or produce contaminated by dioxins discharged into rivers by paper mills. It is therefore important to ask for paper bleached using new chlorine-free technologies.

**DO YOU KNOW...**

*Apart from saving trees, **recycling waste paper** uses only half of the energy it takes to produce paper from wood. The production process requires far less water and generates less air pollution as well.*

*If all the 75 and 80 gsm A3 and A4 (white) paper CUHK used in 2014 /15 term were replaced with recycled paper, it would<sup>2</sup>:*

- *save approximately 2924 trees*
- *save around 68800 KWh of electricity*
- *save water equivalent to the volume used by 114 full-time students and staff on campus for a year, and*
- *prevent 4600 kg of pollutants from entering the atmosphere*

**Cost Implications**

*Although recycled paper costs more than conventional paper, the amount of money spent on paper is usually miniscule compared to the total budget of departments—even academic departments, the major paper users. Take for example an academic department at CUHK that uses 50 reams (or packets) of 80gsm paper (the type of paper most often used on campus) a week:*

- *Assume that each ream of recycled A4 80gsm paper costs approximately \$3 more than conventional paper.*
- *Therefore, the extra cost of using recycled paper is approximately \$7,821 a year.*
- *The one-line budget of this academic department is \$20 million. The extra cost of using recycled A4 paper for a year will be about **0.03%** of the budget.*
- *On the whole, the department will spend **0.27%** of its budget on purchasing recycled A4 paper for the year.*

**(ii) Multifunction photocopiers**

- Applies to:** Multifunction photocopiers in the centralized tender
- Specifications:** Energy Star label, recognition-type energy label (by EMSD)<sup>3</sup>, or other power-saving qualification; built-in duplex function<sup>4</sup>
- Effective from:** 2012
- How to purchase:** All the photocopiers in the Business Office’s centralized tender meet the aforesaid green specifications.

Green models in the tender have been labelled with the text

<sup>2</sup> According to [Recycling Revolution](#), using 1 ton of recycled paper in place virgin paper conserves 7,000 gallons of water, 17 trees, 400 KWh of electricity and prevents 60 pounds of air pollutants from entering the atmosphere.

<sup>3</sup> For more information on energy labels/environmental labels, please refer to [Labels and Certificates – Photo Guide \(Appendix D\)](#).

<sup>4</sup> Duplex function enables users to print double-sided and thus save paper.

**‘GREEN!’.**

**Certifications:**



Energy  
Star label



Recognition-type energy  
label

Image source: Energy Labels under Voluntary  
Energy Efficiency Labelling Scheme VEELS

### (iii) Laser printers

**Applies to:** Laser printers in ITSC’s tender  
**Specifications:** Energy Star label, recognition-type energy label (by EMSD)<sup>3</sup>, or other power-saving qualification; built-in duplex function<sup>4</sup>  
**Effective from:** 2012  
**How to purchase:** Green models in the tender have been labelled with the text **‘GREEN!’.**

**Certifications:**



Energy Star  
label



Recognition-type energy  
label

Image source: Energy Labels under Voluntary  
Energy Efficiency Labelling Scheme VEELS

### (iv) Desktop computers

**Applies to:** Desktop computers in ITSC’s tender  
**Specifications:** Energy Star label, or other power-saving qualification like TCO; EPEAT® registration preferred<sup>3</sup>  
**Effective from:** 2012  
**How to purchase:** All desktop computers in ITSC’s tender meet the aforesaid green specifications.  
Green models in the tender have been labelled with the text **‘GREEN!’.**

**Certifications:**



Energy Star label



EPEAT logo

### (v) LCD monitors

**Applies to:** LCD monitors in ITSC’s tender

**Specifications:** Energy Star label, or other power-saving qualification like TCO; EPEAT registration preferred<sup>3</sup>

**Effective from:** 2013

**How to purchase:** All LCD monitors in ITSC's tender meet the aforesaid green specifications after the setting of the new tender. Green models have been labelled with the text 'GREEN!'.

**Certifications:**



Energy Star label



EPEAT logo

### (vi) Notebook computers

**Applies to:** Notebook computers in ITSC's tender

**Specifications:** Energy Star label, or other power-saving qualification like TCO; EPEAT registration preferred<sup>3</sup>

**Effective from:** 2012

**How to purchase:** All notebook computers in ITSC's new 2012 tender will meet the aforesaid green specifications.

Green models have been labelled with the text 'GREEN!'.

**Certifications:**



Energy Star label



EPEAT logo

### (vii) Room air conditioners

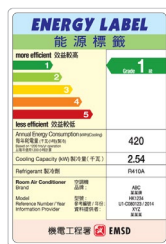
**Applies to:** All room air conditioners<sup>5</sup>

**Specifications:** Grade 1 of mandatory energy label (by EMSD)<sup>3</sup>

**Effective from:** 2012

**How to purchase:** All room air conditioners in Hong Kong with cooling capacity not exceeding 7.5 kW have the mandatory energy label.

**Certifications:**



Grade 1 air conditioner mandatory energy label

Source: Energy Labels under Mandatory Energy Efficiency Labelling Scheme MEELS

<sup>5</sup> With cooling capacity not exceeding 7.5 kW and covered in the Mandatory Energy Efficiency Labelling Scheme.

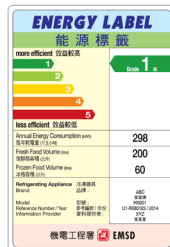


### DO YOU KNOW...

**Air conditioning** accounted for 30% of Hong Kong's electricity consumption in 2013 and was the second largest end-use<sup>6</sup>. Air conditioners that have obtained Grade 1 of EMSD's mandatory energy label use less energy than other air conditioners; Grade 1 air conditioners typically use 11% less energy than Grade 3 air conditioners<sup>7</sup>.

### (viii) Refrigerators

- Applies to:** All refrigerators with a total rated storage volume of 500L or below
- Specifications:** Grade 1 of mandatory energy label (by EMSD)<sup>3</sup>
- Effective from:** Immediately (for all new purchases)
- How to purchase:** All refrigerators with a total rated storage volume of 500L or below have the mandatory energy label.
- Certifications:**



Grade 1 refrigerator mandatory energy label

Source: Energy Labels under Mandatory Energy Efficiency Labelling Scheme MEELS

### DO YOU KNOW...

**Refrigerators** that have obtained Grade 1 of EMSD's mandatory energy label use less energy than other refrigerators; Grade 1 refrigerators typically use 41% less energy than Grade 3 refrigerators<sup>8</sup>.

<sup>6</sup> Source: [http://www.emsd.gov.hk/filemanager/en/content\\_762/HKKEUD2015.pdf](http://www.emsd.gov.hk/filemanager/en/content_762/HKKEUD2015.pdf)

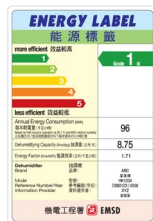
<sup>7</sup> For more information on energy savings, refer to:  
[http://www.energylabel.emsd.gov.hk/en/label/label\\_ac.html](http://www.energylabel.emsd.gov.hk/en/label/label_ac.html)

<sup>8</sup> [http://www.energylabel.emsd.gov.hk/en/label/label\\_ra.html](http://www.energylabel.emsd.gov.hk/en/label/label_ra.html)

## (ix) Dehumidifiers

- Applies to:** All dehumidifiers with dehumidifying capacity not exceeding 35 litres per day
- Specifications:** Grade 1 of mandatory energy label (by EMSD)<sup>3</sup>
- Effective from:** Immediately (2016)
- How to purchase:** All dehumidifiers in Hong Kong with dehumidifying capacity not exceeding 35L/day have the mandatory energy label.

### Certifications:



Grade 1 dehumidifier mandatory energy label

Source: Energy Labels under Mandatory Energy Efficiency Labelling Scheme MEELS

### DO YOU KNOW...

*Dehumidifiers that have obtained Grade 1 of EMSD's mandatory energy label typically use 24% less energy than Grade 3 dehumidifiers<sup>9</sup>.*

## (x) Washing machines

- Applies to:** All washing machines with rated capacity not exceeding 7kg
- Specifications:**
- Grade 1 or 2 of mandatory energy label (by EMSD)<sup>3</sup>, with preference on Grade 1.
  - Grade 1 or 2 of Grading Type Water Efficiency Label (by Water Supplies Department), with preference on Grade 1, or similar water-saving qualification.
- Effective from:** Immediately (2016)
- How to purchase:**
- All washing machines in Hong Kong with rated capacity not exceeding 7kg have the mandatory energy label.
  - The Grading Type Water Efficiency Label is common on washing machines sold in Hong Kong. Other water-saving labels are also accepted.

### Certifications:



OR



Grade 1 or 2 washing machine mandatory energy label

Source: Energy Labels under Mandatory Energy Efficiency Labelling Scheme MEELS

<sup>9</sup> [http://www.energylabel.emsd.gov.hk/en/label/label\\_dehu.html](http://www.energylabel.emsd.gov.hk/en/label/label_dehu.html)



OR



Grade 1 or 2 of Grading Type Water Efficiency Label

**DO YOU KNOW...**

*Washing machines that have obtained Grade 1 of EMSD's mandatory energy label and Grade 1 grading type water efficiency label typically use 23% less energy<sup>10</sup> and at least 15% less water (per kg/cycle)<sup>11</sup> than models that have obtained the Grade 3 energy label and Grade 3 water label.*

**(xi) Lamps**

**Applies to:**

- (a) Incandescent lamps: Incandescent lamp bulbs that are 25 watt (W) or above, including GLS lamps (standard light bulbs), candle shape, fancy round and other decorative lamps, as well as tungsten halogen lamps (quartz lamps)
- (b) Integrated compact fluorescent lamps (CFLs)<sup>12</sup>
- (c) Fluorescent lamp tubes

**Specifications:**

- (a) For incandescent lamps, cease purchasing new incandescent lamps; when replacements are necessary, choose Light Emitting Diodes (LEDs), CFLs or other energy-efficient lamps.
- (b) For CFLs, choose those that have obtained Grade 1 of mandatory energy label (by EMSD)<sup>3</sup>.
- (c) For fluorescent lamp tubes, use T5 tubes (or T4 tubes where applicable).

**Effective from:**

2012

**How to purchase:**

All integrated CFLs in Hong Kong carry EMSD's mandatory energy label.

**Certifications:**



Grade 1 CFL mandatory energy label

Source: Energy Labels under Mandatory Energy Efficiency Labelling Scheme MEELS

<sup>10</sup> [http://www.energylabel.emsd.gov.hk/en/label/label\\_wm.html](http://www.energylabel.emsd.gov.hk/en/label/label_wm.html)

<sup>11</sup> For more information on washing machine water savings, refer to: <http://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/wels-on-washing-machines/voluntary-water-efficiency-labelling-scheme-on-was/index.html>

<sup>12</sup> With a rated wattage up to 60W.

### DO YOU KNOW...



**Incandescent lamps** are very energy inefficient and generate a lot of heat, which increases the amount of air conditioning needed to cool a room. In 2013, lighting accounted for 13% of Hong Kong's electricity consumption and was the third largest end-use<sup>6</sup>.



**Compact Fluorescent Lamps (CFLs)**, which typically use 75% less energy than incandescent lamps, cost more initially (the price is 3-10 times that of an incandescent lamp), but last 6-15 times longer and are less expensive in the long run. However, CFLs must be recycled as they contain mercury, a toxic heavy metal.



**Light Emitting Diodes (LEDs)** use 80% less energy than incandescent lamps and last around 35 times longer. LEDs are more energy-efficient than Compact Fluorescent Lamps and contain no mercury.



**T5 lamps** are fluorescent lamps that are 5/8 of an inch in diameter. In comparison, older and less efficient T8 lamps and T12 lamps are 1" and 1.5" in diameter respectively. Even newer and more efficient are the T4 tubes, which are 0.5" in diameter.

## (xii) Fluorescent lamp ballasts

<b>Applies to:</b>	Ballasts for fluorescent lamp tubes
<b>Specifications:</b>	Electronic ballasts with the recognition-type energy label (by EMSD) <sup>3</sup> or other power-saving qualification
<b>Effective from:</b>	2012
<b>How to purchase:</b>	The recognition label might be found on the product package. Models registered under the labelling scheme can also be found here: <a href="http://www.emsd.gov.hk/emsd/eng/pee/eels_reg_1.shtml">http://www.emsd.gov.hk/emsd/eng/pee/eels_reg_1.shtml</a>

### Certifications:



Recognition-type energy label

Image source: Energy Labels under Voluntary Energy Efficiency Labelling Scheme VEELS

### (xiii) Paints

<b>Applies to:</b>	Architectural paints and coatings for walls and ceilings
<b>Specifications:</b>	Only water-based paints should be used, which should <ul style="list-style-type: none"><li>- contain no or low VOCs<sup>13</sup>, i.e. VOC content for paints applied indoors and paints applied outdoors should not exceed 50g per litre (g/L) and 150g per litre (g/L) respectively, <b>or</b></li><li>- meet standards specified by one of the following: the Hong Kong Green Labelling Scheme<sup>3</sup>, China Environmental Labelling Scheme, Greenguard, Green Seal <b>or</b> SCS Indoor Advantage.</li></ul>
<b>Effective from:</b>	2012
<b>How to purchase:</b>	Specify requirements when inviting tender.
<b>Certifications:</b>	



Hong Kong Green Label

(This label is provided courtesy of Green Council)

### (xiv) Carpets

<b>Applies to:</b>	Carpets to be installed in new buildings or for retrofitting
<b>Specifications:</b>	Carpets used should <ul style="list-style-type: none"><li>- contain low or no VOCs<sup>13</sup>, i.e. emissions of Total Volatile Organic Compounds (TVOCs) should not exceed 0.5mg/m<sup>2</sup> per hour, <b>or</b></li><li>- meet standards specified by the Carpet and Rug Institute (CRI), Floorscore, Danish Indoor Climate Labelling (Denmark) <b>or</b> European association for environmentally friendly carpets (GUT), and</li><li>- preferably sold as individual tiles and either contain recycled materials or are recyclable.</li></ul>
<b>Effective from:</b>	2012
<b>How to purchase:</b>	Specify requirements when inviting tender.

### (xv) Sustainability-conscious food consumption

<b>Applies to:</b>	All activities that are either organized or paid for by CUHK; all CUHK purchases, as well as meals served in club houses, canteens or restaurants operated by the University and the Colleges
<b>Specifications:</b>	Shark's fins, bluefin tuna (藍鰭吞拿魚), black moss ('fat choy' 髮菜), humphead wrasse <sup>14</sup> (蘇眉), Hong Kong grouper <sup>15</sup>

<sup>13</sup> Volatile Organic Compounds (VOCs) are chemicals that readily evaporate and contribute to the formation of air pollutants when released into the air indoors or outdoors. Many VOCs are classified as toxic and carcinogenic.

<sup>14</sup> Species: Cheilinus undulatus

<sup>15</sup> Species: Epinephelus akaara

(紅斑) and sturgeon caviar<sup>16</sup> (鱈魚魚子醬) shall not be purchased, served, consumed or promoted.  
**Effective from:** 2012 (shark's fin); 2013 (bluefin tuna and black moss) ); 2017 (humphead wrasse, Hong Kong grouper and sturgeon caviar)

#### 4.2 Get contractors and consultants involved

To enable **contractors** and **consultants** to choose green products when purchasing on behalf of the University, in particular those made mandatory in Section 4 above, the relevant green specifications must be included in the invitation of tenders from contractors or consultants.

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<sup>16</sup> Sturgeon is the common name for the 27 species of fish belonging to the family Acipenseridae.

## **5. Compliance, Initiatives and Support**

### **5.1 Compliance**

All mandatory green products in Section 4.1 are either easily available from the University at below-market prices and have been used by many offices without difficulties, or are widely available in the market at prices similar to conventional products.

While no formal audit will be conducted to ensure compliance, directors and heads of departments have the responsibility to make sure their staff members responsible for purchasing are aware of, and are able to comply with, the stipulated requirements.

For the implementation of (xv) Sustainability-conscious food consumption, the Finance Office will list these prohibited species in its 'Reimbursement / Payment for Entertainment Expenditure Form' used by all offices.

### **5.2 Initiatives of major purchasers and tender callers**

Some major purchasers and tender callers have already taken leadership in green purchasing at the University and are committed to identifying and purchasing environmentally-preferable items with good value for money. They are:

- Business Office (BO)
- Campus Development Office (CDO)
- Estates Management Office (EMO)
- Information Technology and Services Centre (ITSC)
- Transport Unit

Staff members responsible for purchasing on behalf of the University are welcome to refer to these pioneer initiatives ([Appendix B](#)) when considering ways their departments can join the movement to make CUHK's purchases more environmentally-friendly.

### **5.3 Support from the University**

The University will provide additional support to the promotion of green purchasing in the following ways:

- Major tender callers will continue to explore the availability, quality and prices of green options for products commonly used in the University, so that more green options will be available at reasonable prices. Furthermore, the University will engage suppliers of goods and services on campus (e.g. bookstores) to make it easier for staff and students to obtain green products.
- Green options available in the tenders are labelled for purchasers' easy identification and selection.
- SRSDO will liaise with major purchasers and tender callers to hear about the findings and progress regarding green purchasing, and to determine what incentives or funding

the University may be able to provide to support green purchasing initiatives. SRSDO will also liaise with more major purchasers and pioneers of green purchasing on campus and seek their support in 'greening' the University's purchases further.

- SRSDO will on approval of CCS regularly update the list of green products and the list of green purchasing initiatives major purchasers are taking, in order to reflect changes in the types and specifications of green products procured by the University, and to acknowledge new major purchasers/tender callers for their efforts in promoting and supporting green purchasing at CUHK.

### **Enquiries and Suggestions**

Enquiries and suggestions are welcome. Please contact SRSDO by:

Email: [srsdo@cuhk.edu.hk](mailto:srsdo@cuhk.edu.hk)  
Telephone: 3943 3972



### Recommended ‘Green Products’ and their ‘Green Specifications’

In addition to the products listed in Section 4 **Mandatory ‘Green Actions’** above, green varieties of many other products are recommended for purchase. The following list of recommended ‘green products’ and their specifications is established based on the ‘green specifications’ recommended by the Environmental Protection Department (EPD) of the Hong Kong SAR Government as well as those commonly used by other tertiary institutions. The list also captures the key green aspects of many commonly used items. It is not exhaustive and more products may be added depending on market availability, stakeholders’ readiness and new environmental standards.

**Purchasers are strongly recommended to take the following green specifications into consideration in procuring and purchasing.** Green options currently available from suppliers listed on Business Office’s or ITSC’s web pages are labelled with the text ‘**GREEN!**’ for easy identification by purchasers.

**Purchasers should always ask the suppliers whether the items meet the green specifications.**

If suppliers request more details or when comparison of two products in terms of their ‘greenness’ is needed, please refer to the green specifications recommended by the EPD:

[http://www.epd.gov.hk/epd/english/how\\_help/green\\_procure/green\\_procure1.html](http://www.epd.gov.hk/epd/english/how_help/green_procure/green_procure1.html)

More information on environmental labels and certificates is given in [Labels and Certification – Photo Guide \(Appendix D\)](#).

Products		Specifications
A. Stationery		
1	Pens and pencils	Whenever possible, purchase refillable pens and mechanical pencils. Replenish with refills instead of buying new pens and pencils when they run out of writing materials <sup>17</sup>  <b>Tips for purchasers:</b> Refillable pens, mechanical pencils and refills are available in most stationery shops. Green options are available from the stationery supplier(s) listed in the Business Office’s centralized tender.
2	Correction fluid and thinner or	Contains no ozone-depleting chemicals (usually labelled ozone-friendly or ozone-safe) <sup>18</sup>

<sup>17</sup> Using refillable pens saves the resources required to manufacture new pens, and reduces waste generated by pen disposal. Traditional pencils have a wood barrel made of virgin hardwood; using refills in mechanical pencils reduces the number of trees that must be cut down to produce barrels.

<sup>18</sup> Some correction fluid contains 1,1,1-trichloroethane, a chemical that depletes the Earth’s ozone layer and may cause respiratory irritation. Newer types of correction fluid that contains water instead of 1,1,1-trichloroethane, though taking marginally longer to dry, are widely available and healthier to use.

Products		Specifications
	correction pens	<b>Tips for purchasers:</b> Most stationery shops carry the green option. Just check the product label to make sure that it is ozone-friendly or ozone-safe. Green options are available from the stationery supplier(s) listed in the Business Office's centralized tender.
3	Notebooks and notepads	Made of recycled paper <sup>19</sup>
4	Paper file jackets	Made of recycled paper <sup>19</sup>
5	Plastic file jackets	Containing recycled plastic
6	File boxes with lock spring	Made of recycled paper <sup>19</sup>
7	Cartons and wrapping paper	Made of recycled paper <sup>19</sup>
8	Plastic packaging	Avoid packaging that contains chlorinated or halogenated plastics <sup>20</sup> . Used packaging should be able to be recycled by local recycling systems
9	Plastic films and sheets	Contains recycled materials  Contains no intentionally added heavy metals of lead, The product should not contain intentionally added heavy metals of lead, mercury, cadmium and hexavalent chromium, excepting those added as result of using recycled content, the sum of which shall not exceed 100 ppm by weight
<b>B. Office equipment and electrical appliances</b>		
10	Servers	Energy Star label or other power-saving qualification <sup>3</sup>  <b>Tips for purchasers:</b> Most servers in ITSC's tender are Energy Star-labelled.
11	Multifunction printers	Energy Star label, recognition-type energy label (by EMSD), or other power-saving qualification <sup>3</sup> . Models registered under EMSD's labelling scheme can be found here: <a href="http://www.emsd.gov.hk/emsd/eng/pee/eels_reg_1.shtml">http://www.emsd.gov.hk/emsd/eng/pee/eels_reg_1.shtml</a>
12	Vending machines	Energy Star power-saving qualification (or equivalent) <sup>3</sup> ; or install external 'vending miser' devices or similar power-saving devices

<sup>19</sup> Apart from saving trees, recycling waste paper uses only half of the energy it takes to produce paper from wood. The production process requires far less water and generates less air pollution as well.

<sup>20</sup> Examples of chlorinated / halogenated plastics: Chlorinated Polyethylene (CPE), Chlorinated Polyvinyl Chloride (CPC), Chlorinated Polyvinyl Chloride (CR), Chlorosulfonated Polyethylene (CSPE/CSM), Polyvinylchloride (PVC)

Products		Specifications
13	Electrical storage water heaters	Grade 1 (or Grade 2 where Grade 1 is not widely available) of grading-type energy label (by EMSD), or other power-saving qualification <sup>3</sup>  (NB. Applies only to electrical water heaters with storage capacity not exceeding 300 litres).
14	Television	Energy Star label, Grade 1 or 2 Energy Label under the Energy Efficiency Labelling Scheme (by EMSD), or other power-saving qualification <sup>3</sup>
15	Shredder	Comply with RoHS <sup>21</sup> ; plastic parts should be manufactured without chlorinated paraffins flame retardants; component parts should not contain halogenated substances
16	Dryer	Grade 1 of voluntary grading-type energy label (by EMSD) <sup>3</sup>
17	Electric fan	With a power factor of 0.8 or more, or with Energy Star label ; comply with RoHS <sup>21</sup>
<b>C. Printed matters</b>		
18	Printed matters (envelopes, certificates, letterheads, etc.)	Printed on 100% recycled paper <sup>19</sup>  <b>Tips for purchasers:</b> Many printing companies can print stationery using recycled paper. The Business Office provides tender prices for selected printed matters on recycled paper.
19	Printing ink	Containing soy oil or vegetable oils <sup>22</sup>  <b>Tips for purchasers:</b> To select printing companies that use soy ink, you can ask for certificates like the SoySeal authorized by the American Soybean Association.
20	Name card printing	Printed on 100% recycled paper <sup>19</sup> with inks containing soy oil or vegetable oils <sup>22</sup>

<sup>21</sup> The Restriction of Hazardous Substances Directive (RoHS) was adopted in February 2003 by the EU. It restricts the use of six hazardous materials - Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Hex-Cr), Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE) - in the manufacture of various types of electronic and electrical equipment. For more information on energy labels/environmental labels, please refer to [Labels and Certificates – Photo Guide \(Appendix D\)](#).

<sup>22</sup> During paper recycling, soy and vegetable inks can be removed more easily than regular ink from paper, which saves treatment costs during recycling. Inks that contain certain types of vegetable oils (e.g. soy oil) also emit less harmful VOCs during printing.

Products		Specifications
		<p><b>Tips for purchasers:</b> Many printing companies can print name cards using recycled paper and eco-friendly ink. The Business Office provides reference prices from printing companies that use recycled paper and eco-friendly ink.</p>
D. Plastic bags and containers		
21	Garbage bags	<p>Biodegradable<sup>23</sup> or made of plastic/other materials with recycled content</p> <p><b>Tips for purchasers:</b> Biodegradable garbage bags are available in most supermarkets. For bulk orders, the supplier(s) in the Business Office's centralized tender offers biodegradable bags at tender prices.</p>
22	Umbrella bags	<p>Biodegradable<sup>23</sup> or made of plastic/other materials with recycled content</p> <p><b>Tips for purchasers:</b> The supplier(s) of biodegradable garbage bags listed in the Business Office's centralized tender may have biodegradable umbrella bags for sale.</p>
23	Food and drink containers	<p>Biodegradable<sup>24</sup> or made of plastic/other materials with recycled content</p> <p>Use reusable food and drink containers and avoid using disposables whenever possible.</p>
24	Plastic shopping bags (for souvenirs)	<p>Look for at least one product declaration below:</p> <ul style="list-style-type: none"> <li>• Contain recycled plastic content</li> <li>• Biodegradable</li> </ul>
E. Toiletries and cleaning products		
25	Toilet paper	<p>Made of 100% recycled<sup>19</sup>, non-chlorine bleached<sup>1</sup> paper</p> <p><b>Tips for purchasers:</b> Unbleached, recycled toilet paper (regular rolls) is available from the supplier(s) listed in the Business Office's centralized tender at tender price.</p>

<sup>23</sup> Traditional plastic bags take hundreds of years to decompose and create huge waste treatment problems in the landfill. Biodegradable bags should take only a few months to decompose in landfill conditions and turn into non-toxic carbon dioxide, water and biomass.

<sup>24</sup> Biodegradable food and drink containers can be made of materials like bagasse (sugar cane pulp) or corn. However these usually do not decompose in a landfill's anaerobic environment. They do, however, decompose in a compost pile.

Products		Specifications
26	All-purpose cleaner	Biodegradable <sup>25</sup> , preferably phosphate-free <sup>26</sup> and non-toxic; all-purpose cleaner with Hong Kong Green Label preferred.  Cleaning agents with labels like Ecologo, Green Seal or U.S.EPA Design for the Environment are also preferred.
27	Lavatory cleansing powder or detergent	Biodegradable <sup>25</sup> , preferably phosphate-free <sup>26</sup> and non-toxic  Cleaning agents with labels like Ecologo, Green Seal or U.S.EPA Design for the Environment are also preferred.
28	Soap toilet liquid and dishwashing liquid	Biodegradable <sup>25</sup> , preferably phosphate-free <sup>26</sup> and non-toxic  Cleaning agents with labels like the China Environmental Label, Ecologo, Green Seal or U.S.EPA Design for the Environment are also preferred.  <b>Tips for purchasers:</b> Available at large supermarkets. Other desirable specifications to look for include 'with neutral pH', 'does not contain chlorine' and 'plant-derived'.
F. Furnishing and construction		
29	Multi-purpose construction adhesives	Comply with HKSAR EPD VOC regulation limit for adhesives; phthalates (esters of 1,2 benzenedicarboxylic acid), alkylphenol ethoxylates and halogenated solvents have not been used to formulate the product or added to the product
30	Flooring materials	No or low VOCs <sup>13</sup> , i.e. VOC discharge rate should not exceed 500µg/m <sup>2</sup> per hour; preferably containing recycled materials  Flooring materials with Greenguard, Floorscore or other similar certification are also preferred.
31	Building materials	Contain recycled materials
32	Walkways, patios and driveways	Made of a permeable substance or have a permeable structure <sup>27</sup> ; contain recycled materials
33	Adhesives and sealants	Comply with the VOC content limits on regulated adhesives stipulated in the Air Pollution Control (VOC) Regulation of Hong Kong  Contains none of the substances regulated in the Montreal

<sup>25</sup> Biodegradable cleaning agents cause less water pollution as they are less toxic and can be broken down by bacteria relatively quickly.

<sup>26</sup> Conventional dishwashing formulas contain phosphate, which becomes a nutrient for certain kinds of algae when it enters the water and promotes excessive algal growth. The algae then die and decompose in the water. The massive amount of decomposing plant matter consumes all the oxygen in the water, killing aquatic life and causing water quality to decline.

<sup>27</sup> Permeable paving materials allow water to percolate into the soil. This helps prevent flooding during heavy rains and nourishes soil organisms and tree roots.

Products		Specifications
		<p>Protocol on Substances that Deplete the Ozone Layer<sup>28</sup></p> <p>Contains no more than 0.01% by wet weight of formaldehyde</p> <p>Contains no more than 0.5% by wet weight of the sum total of aromatic compounds, which include benzene, toluene, xylenes, and ethylbenzene</p>
34	Partition screen, workstation panel	<p>All wood panels shall be of Class E1 under EN13986 in respect of formaldehyde emission, and the requirements are as follows:</p> <ul style="list-style-type: none"> <li>• MDF (Medium-density fibreboard) board : release <math>\leq</math> 8mg/100g (by test method EN120)</li> <li>• Plywood/solid wood/other panels : release <math>\leq</math> 0.124mg/ m<sup>3</sup> air (by test method EN 717-1)</li> </ul> <p>Contain recycled or waste wood</p>
35	Timber doors	<p>All wood panels shall be of Class E1 under EN13986 in respect of formaldehyde emission</p> <p>Contains none of the following heavy metals or their compounds: arsenic, cadmium, copper, lead, mercury</p> <p>Manufactured without the use of the following additives: elemental chlorine, fluorine, PCP (pentachlorophenol) and tar oils containing benzo(a)pyrene</p> <p>Contains none of the following flame retardant formulated components: biphenyl (PBB), polybrominated diphenyl ether (PBDE) or short-chain chlorinated paraffin</p>
36	Windows	<p>Thermal insulation capacity of the glass should be equal to or less than the heat transfer coefficient (U-value) of 1.4W/m<sup>2</sup>K</p> <p>Components not formulated with the following substances or their compounds: arsenic, cadmium, hexavalent chromium, lead, mercury, organic tin, phthalates</p>
37	Wood panels	<p>Content of free formaldehyde in adhesives used in the product shall not exceed 0.5 % by weight of the adhesive</p> <p>All wood panels shall be of Class E1 under EN13986 in respect of formaldehyde emission</p> <p>Contains none of the following heavy metals or their compounds: arsenic, cadmium, copper, lead, mercury</p>

<sup>28</sup> Particularly CFCs, HCFCs, 1,1,1-trichloroethane and carbon tetrachloride.

Products		Specifications
		<p>Manufactured without the use of the following additives: elemental chlorine, fluorine, PCP (pentachlorophenol) and tar oils containing benzo(a)pyrene</p> <p>Contains none of the following flame retardant formulated components: biphenyl (PBB), polybrominated diphenyl ether (PBDE) or short-chain chlorinated paraffin</p>
38	Ceramic tiles	<p>Content of elements used in the glazes shall not exceed the following specific limits:</p> <ul style="list-style-type: none"> <li>• Antimony: 0.25% in weight of the glazes</li> <li>• Cadmium: 0.1% in weight of the glazes</li> <li>• Lead: 0.5% in weight of the glazes</li> </ul>
39	Varnish and wax polish	<p>Comply with the VOC content limits on regulated adhesives stipulated in the Air Pollution Control (VOC) Regulation of Hong Kong</p> <p>Contains none of the substances regulated in the Montreal Protocol on Substances that Deplete the Ozone Layer<sup>28</sup></p> <p>Contains no more than 0.01% by wet weight of formaldehyde</p> <p>Contains no more than 0.5% by wet weight of the sum total of aromatic compounds, which include benzene, toluene, xylenes, and ethylbenzene</p>
40	Chair	<p>Wood material used should contain at least 40% recycled/waste wood, or has obtained sustainable forest management certification such as FSC, PEFC or equivalent</p> <p>All wood panels shall be of Class E1 under EN13986 in respect of formaldehyde emission, and the requirements are as follows:</p> <ul style="list-style-type: none"> <li>• MDF board: release <math>\leq 8\text{mg}/100\text{g}</math> (by test method EN120)</li> <li>• Plywood/solid wood/other panels: release <math>\leq 0.124\text{mg}/\text{m}^3</math> air (by test method EN 717-1)</li> </ul> <p>Plastic components contains none of the following heavy metals and hazardous substances: lead, chromium, cadmium, mercury, phthalates, halogenated organic substances</p> <p>The formaldehyde emission of foam synthetic resin used in cushioning materials should be 30mg/kg (30ppm) or less</p> <p>The sum of lead, cadmium, mercury, and hexavalent chromium</p>

Products		Specifications
		included in the paint used on the surface of the chair should be below the weight percentage of 0.1 (1,000mg/kg)
41	Steel filing cabinet	<p>Colour coating should not contain:</p> <ul style="list-style-type: none"> <li>• Formaldehyde or halogenated solvent</li> <li>• Any heavy metallic substances such as mercury, lead, cadmium, chromium or their oxide</li> <li>• Aromatic hydrocarbon including solvents of thinner toluene or xylene</li> <li>• Volatile organic compounds (VOCs) over 250g/litre</li> </ul> <p>The compound of 1, 1, 1-trichloroethane should not be used for the surface preparing process</p>
42	Metal furniture	<p>Colour coating should not contain:</p> <ul style="list-style-type: none"> <li>• Formaldehyde or halogenated solvent</li> <li>• Any heavy metallic substances such as mercury, lead, cadmium, chromium or their compounds</li> </ul> <p>Plastic components contain none of the following heavy metals and hazardous substances: lead, chromium, cadmium, mercury, phthalates, halogenated organic substances</p> <p>It should be possible to separate the metals (except metals used in surface treatments) from other materials in the product without the use of special tools</p>
43	Wooden furniture (for indoor use)	<p>Wood material used should contain recycled/waste wood, or has obtained sustainable forest management certification such as FSC, PEFC or equivalent</p> <p>All wood panels should be of Class E1 under EN13986 in respect of formaldehyde emission, and the requirements are as follows:</p> <ul style="list-style-type: none"> <li>• MDF (Medium-density fibreboard) board: <math>\leq 8\text{mg}/100\text{g}</math> of free formaldehyde content (by test method EN120) or release <math>\leq 0.124\text{mg}/\text{m}^3</math> air (by test method EN 717-1)</li> <li>• Plywood/solid wood/other panels: <math>\leq 4\text{mg}/100\text{g}</math> of free formaldehyde content (by test method EN120) or release <math>\leq 0.124\text{mg}/\text{m}^3</math> air (by test method EN 717-1)</li> </ul>
44	Sofa	<p>Wood material used should contain recycled/waste wood, or has obtained sustainable forest management certification such as FSC, PEFC or equivalent</p> <p>Requirements of cushioning and filling materials:</p>



Products		Specifications
		<ul style="list-style-type: none"> <li>• Halogenated flame retardants should not be added</li> <li>• Organic bleaching agent should not be used in production</li> <li>• Dye stuff should not contain lead, tin, cadmium, hexavalent chromium and mercury</li> </ul> <p>Plastic components contain none of the following heavy metals and hazardous substances: lead, chromium, cadmium, mercury, phthalates, halogenated organic substances</p>
45	Mattress	<p>The latex foam used should meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Heavy metals: copper &lt; 2ppm, chromium, nickel &lt; 1ppm, arsenic, lead, antimony, cobalt &lt; 0.5ppm, cadmium &lt; 0.1ppm, mercury &lt; 0.02ppm</li> <li>• Extractable formaldehyde: &lt; 30ppm</li> <li>• VOC: &lt; 0.5mg/m<sup>3</sup></li> <li>• Metal complex dyes based on copper, lead, chromium or nickel should not be used</li> <li>• Chlorophenols (salts and esters): &lt; 0.1ppm; mono, di-chlorinated phenols (salts and esters) &lt; 0.1ppm</li> <li>• Butadiene: &lt; 1ppm Nitrosamines: &lt; 0.001mg/ m<sup>3</sup></li> </ul> <p>The following requirements should be met for Polyurethane (PUR) foam:</p> <ul style="list-style-type: none"> <li>• Heavy metals: copper &lt; 2ppm, chromium and nickel &lt; 1ppm, arsenic, lead, antimony and cobalt &lt; 0.5ppmm, cadmium &lt; 0.1ppm, mercury &lt; 0.02ppm</li> <li>• Extractable formaldehyde: &lt; 30ppm</li> <li>• VOC: &lt; 0.5mg/ m<sup>3</sup></li> <li>• Metal complex dyes based on copper, lead, chromium or nickel should not be used</li> <li>• CFCs, HCFCs, HFCs, methylene chloride should not be used as blowing agents</li> <li>• Tin in organic form (tin bonded to a carbon atom) should not be used</li> </ul> <p>Glues used should not contain benzene and chlorobenzenes</p> <p>Cushioning material should not contain formaldehyde, aromatic hydrocarbons, phthalates, organic tins, cadmium, lead, hexavalent chromium, mercury and their compounds</p>
G. Lighting systems		

Products		Specifications
46	Light Emitting Diodes (LEDs)	When incandescent lamps and compact fluorescent lamps (CFLs) need to be replaced, choose Light Emitting Diodes (LEDs) whenever applicable
47	Solar-powered lighting systems	Use solar-powered lighting systems whenever applicable
H. Batteries		
48	Batteries	Use rechargeable batteries whenever possible <sup>29</sup> ; if alkaline batteries are to be used, look for those containing no mercury and no cadmium <sup>30</sup>  <b>Tips for purchasers:</b> Available at most supermarkets. Check the information on the package to see the product composition ('no mercury', 'no cadmium').
I. Water fixtures		
49	Water taps	Have water-saving performance equivalent to Grade 1 under the Water Efficiency Labelling Scheme (WELS) <sup>3</sup> , or have aerators installed
50	Showerheads	Have water-saving performance equivalent to Grade 1 under the Water Efficiency Labelling Scheme (WELS) <sup>3</sup>
51	Toilets	Have water-saving features such as waterless flushing or dual flush
J. Transportation		
52	Diesel fuel	Use diesel with a biodiesel content of at least 5%
53	Vehicles	Use hybrid or electrical vehicles
54	Rubber and retreaded tyres	Contain recycled rubber
55	Lubricating oil	Contains recycled content
K. Landscaping		
56	Landscaping plants	Species help feed, sustain, and shelter birds and beneficial insects, and/or are drought-tolerant and require little or no watering and application of fertilizers and pesticides
57	Fertilizer and soil improver	Maximize use of compost made with landscaping/food waste

<sup>29</sup> Rechargeable batteries are costlier to use initially (due to higher cost for each cell and cost of the charger), but with technological improvements, rechargeable batteries like Rechargeable Alkaline Manganese (RAM) and low self-discharge NiMH can retain their charge for one year or more, and can be recharged for up to 1500 times, making them a more economical and resource-saving choice in the long run. Rechargeable batteries can also be recycled at the end of their useful lives.

<sup>30</sup> If alkaline batteries must be used, varieties without mercury and cadmium are available on the market, reducing contamination caused during production and after disposal.

Products		Specifications
58	Pesticides	Non-toxic, non-flammable, biodegradable and odorless
59	Irrigation systems	Have water-saving features
60	Garden Machinery (lawn mowers)	The declared sound intensity level should not exceed the limit of 100 dB(A) during operation; comply with RoHS <sup>21</sup>  The metal content in the individual battery cell should be lower than the values shown below: i. Arsenic ≤ 10.0 ppm ii. Cadmium ≤ 5.0 ppm iii. Lead ≤ 5.0 ppm iv. Mercury < ≤ 0.1 ppm
L. Food and drink		
61	Food	Give preference to products/ingredients grown or manufactured in Hong Kong or Guangdong Province <sup>31</sup> , and/or fair trade products <sup>32</sup> ; vegetarian options <sup>33</sup> be made available in each dining area
62	Seafood	Seafood in the <a href="#">‘Recommended’ list</a> of the WWF Seafood Guide <sup>34</sup> Seafood in the <a href="#">‘Think Twice’</a> and <a href="#">‘Avoid’</a> lists are less sustainably produced and should be avoided

<sup>31</sup> To reduce use of packaging during transport and carbon emissions during transportation.

<sup>32</sup> Apart from benefitting disadvantaged communities by guaranteeing relatively stable prices for produce, fair trade can usually benefit the environment by preventing local communities from destroying local natural resources for short-term gain.

<sup>33</sup> A vegetarian diet helps alleviate pressure on the world’s overfished oceans and also reduces carbon emissions. The livestock industry is one of the world’s largest carbon emission sources. Adopting a vegetarian diet every other day can help prevent 2,400 kg of carbon emissions/person/year. In comparison, replacing a 700-900W air conditioner with an electric fan for a year prevents 1,560kg of carbon emissions.

<sup>34</sup> The WWF Seafood Guide assesses wild-caught seafood species with regard to whether the fishery is sustainably managed, and whether fishing methods destructive to the environment are used; farmed seafood is assessed with regard to the farmed species’ susceptibility to disease (which leads to higher input, lower output and more pollution), pollution generated, the use of medicine and the origin of the species’ juveniles.

### Major Purchasers and Tender Callers who Support Green Purchasing

There are a number of major purchasers and tender callers in the University who are pioneers of green purchasing. These include:

- Business Office
- Campus Development Office
- Estates Management Office
- Information Technology and Services Centre
- Transport Unit

These offices are committed to green purchasing, and have effectively ‘greened’ a large part of the University’s purchases. They continuously explore green options, and identify green products of high quality for departments to purchase at reasonable prices.

The Social Responsibility and Sustainable Development Office (SRSDO) will continue to identify other major purchasers and pioneers of green purchasing on campus, and liaise with them to acknowledge their good work and support their efforts.

Major purchasers and tender callers shall update SRSDO on new initiatives taken in support of green purchasing. Their current initiatives include and are not limited to:

Office	Initiatives
Business Office (BO)	<p><u>Stationery and printing</u></p> <ul style="list-style-type: none"> <li>• Investigate the availability and prices of environmentally-friendly stationery.</li> <li>• Label the green options currently available in the centralized tender; continue to secure tender prices or obtain reference prices for these items.</li> <li>• Investigate the applicability of using packaging materials made of recycled paper to package the souvenirs at its souvenir stand.</li> <li>• Offer green printing options (using recycled paper and soy/vegetable ink) in the centralized printed matters tender.</li> </ul> <p><u>Office equipment</u></p> <ul style="list-style-type: none"> <li>• Invite tenders for environmentally-friendly photocopiers.</li> </ul> <p><u>Plastic bags and toiletries</u></p> <ul style="list-style-type: none"> <li>• Invite tenders for biodegradable plastic bags and toilet paper made of unbleached recycled paper.</li> </ul>
Information Technology Services Centre (ITSC)	<ul style="list-style-type: none"> <li>• Invite tenders for desktop and laptop computers, LCD monitors and laser printers that meet the required green specifications.</li> <li>• Give preference to servers that meet the green specifications in future tender invitations.</li> </ul>
Campus Development Office (CDO)	<p><u>Electrical appliances</u></p> <ul style="list-style-type: none"> <li>• Install room air conditioners that have attained Grade 1 of the mandatory energy label for new campus buildings.</li> </ul>

Office	Initiatives
	<p><u>Furnishing and building materials</u></p> <ul style="list-style-type: none"> <li>• Install low-VOC carpets that meet EPD standards in new buildings.</li> <li>• Use water-based paints (which emit less VOCs than solvent-based paints) in building projects.</li> </ul> <p><u>Lighting systems</u></p> <ul style="list-style-type: none"> <li>• Use Compact Fluorescent Lamps (CFLs), Light Emitting Diodes (LEDs), T5 fluorescent lamps or other energy-efficient lighting systems in place of incandescent lamps in new buildings, whenever possible.</li> <li>• Purchase compact fluorescent lamp ballasts with the EMSD recognition-type label.</li> <li>• Install solar-powered lighting systems whenever possible and economical.</li> </ul> <p><u>Water</u></p> <ul style="list-style-type: none"> <li>• Use water taps and showerheads that meet water-saving green specifications, where applicable.</li> <li>• Purchase toilets with water-saving dual-flush function for new buildings.</li> </ul>
Estates Management Office (EMO)	<p><u>Electrical appliances</u></p> <ul style="list-style-type: none"> <li>• Install air conditioners that have attained Grade 1 of the mandatory energy label in retrofit works.</li> <li>• Purchase refrigerators that have obtained Grade 1 of the mandatory energy label (by EMSD) for all staff residences.</li> </ul> <p><u>Plastic bags</u></p> <ul style="list-style-type: none"> <li>• Use biodegradable garbage bags whenever possible and economical.</li> </ul> <p><u>Furnishing and building materials</u></p> <ul style="list-style-type: none"> <li>• Use road pavers and building materials that contain recycled materials whenever possible and economical.</li> <li>• Use water-based paints (which emit less VOCs than solvent-based paints) for walls and ceilings in retrofit works.</li> <li>• Install carpets certified by the Carpet and Rug Institute for low VOC-emissions in retrofit works.</li> </ul> <p><u>Lighting systems</u></p> <ul style="list-style-type: none"> <li>• Use Light Emitting Diodes (LEDs), T5 fluorescent tubes or other energy-efficient lighting systems in place of incandescent lamps in retrofit works, whenever possible.</li> <li>• Purchase compact fluorescent lamp ballasts with the EMSD recognition-type label for retrofit works.</li> <li>• Install solar-powered lighting systems whenever possible and economical.</li> </ul> <p><u>Water</u></p> <ul style="list-style-type: none"> <li>• Use water taps and showerheads that meet water-saving green specifications, where applicable.</li> <li>• Purchase toilets with water-saving dual-flush function for new</li> </ul>

Office	Initiatives
	<p>buildings and retrofit works.</p> <p><u>Landscaping</u></p> <ul style="list-style-type: none"> <li>• Plant low-maintenance plants or ecologically-beneficial plants whenever appropriate and economical.</li> <li>• Use soil improver made with composted landscaping waste and kitchen waste.</li> </ul> <p><u>Transportation</u></p> <ul style="list-style-type: none"> <li>• Use electric scooters whenever possible and economical</li> </ul> <p><u>Others</u></p> <ul style="list-style-type: none"> <li>• Install renewable energy facilities on campus including solar hot water systems in student hostels, solar bus stops, hydraulic ram pumps and wind turbines.</li> </ul>
Transport Unit	<ul style="list-style-type: none"> <li>• Investigate the feasibility of procuring diesel fuel that contains at least 5% biodiesel for campus vehicles in future tenders.</li> <li>• Introduce green vehicles into the University's car fleet.</li> </ul>

## Useful Links

## A. Local and overseas green purchasing websites for general reference

Country/City	Programme	Website
Hong Kong	Guide to Green Procurement (EPD)	<a href="http://www.epd.gov.hk/epd/english/how_help/green_procure/green_procure1.html">http://www.epd.gov.hk/epd/english/how_help/green_procure/green_procure1.html</a>
	Green Label Scheme (Green Council)	<a href="http://www.greencouncil.org/en/page.php?sub_id=5">http://www.greencouncil.org/en/page.php?sub_id=5</a>
	Mandatory Energy Label Registration Records (EMSD)	<a href="http://www.energylabel.emsd.gov.hk/en/search/product_list1.html">http://www.energylabel.emsd.gov.hk/en/search/product_list1.html</a>
	Voluntary Energy Label Registration Records (EMSD)	<a href="http://www.emsd.gov.hk/en/energy_efficiency/voluntary_energy_efficiency_labelling_scheme/registers/index.html">http://www.emsd.gov.hk/en/energy_efficiency/voluntary_energy_efficiency_labelling_scheme/registers/index.html</a>
	Voluntary Water Efficiency Labelling Scheme (WSD)	<a href="http://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/index.html">http://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/index.html</a>
	Controls and requirements of the VOC Regulation (EPD)	<a href="http://www.epd.gov.hk/epd/english/environment/hk/air/prob_solutions/voc_reg.html">http://www.epd.gov.hk/epd/english/environment/hk/air/prob_solutions/voc_reg.html</a>
	'Sustainable Seafood Guide' (WWF Hong Kong)	Sustainable Seafood Guide: <a href="http://www.wwf.org.hk/en/whatwedo/oceans/supporting_sustainable_seafood/">http://www.wwf.org.hk/en/whatwedo/oceans/supporting_sustainable_seafood/</a>
International	Global Ecolabelling Network (GEN)	<a href="http://www.globalecolabelling.net">www.globalecolabelling.net</a>
	International Green Purchasing Network	<a href="http://www.igpn.org/">http://www.igpn.org/</a>
Australia	Ecolabel	<a href="http://www.geca.org.au">http://www.geca.org.au</a>
Canada	EcoLogoM Programme	<a href="http://services.ul.com/service/ecologo-certification/">http://services.ul.com/service/ecologo-certification/</a>
Mainland China	China Environmental Labelling	<a href="http://kjs.mep.gov.cn/zghjzb/">http://kjs.mep.gov.cn/zghjzb/</a>
European Union	EU Flower	<a href="http://ec.europa.eu/environment/ecolabel/">http://ec.europa.eu/environment/ecolabel/</a>
Germany	Blue Angel	<a href="http://www.blauer-engel.de/en/index.php">http://www.blauer-engel.de/en/index.php</a>
Japan	Eco Mark	<a href="http://www.ecomark.jp/english/index.html">http://www.ecomark.jp/english/index.html</a>
Korea	Eco Label	<a href="http://www.ecolabelindex.com/ecolabel/korean-ecolabel">http://www.ecolabelindex.com/ecolabel/korean-ecolabel</a>
New Zealand	Environmental Choice	<a href="http://www.enviro-choice.org.nz">http://www.enviro-choice.org.nz</a>
Nordic (Denmark, Finland, Norway, Iceland and Sweden)	The Swan	<a href="http://www.svanen.se/en/">http://www.svanen.se/en/</a>

<b>Country/City</b>	<b>Programme</b>	<b>Website</b>
Singapore	GreenLabel	<a href="https://sgls.sec.org.sg/">https://sgls.sec.org.sg/</a>
Sweden	TCO Label	<a href="http://www.tcodevelopment.com/">http://www.tcodevelopment.com/</a>
Taiwan	Green Mark	<a href="http://greenliving.epa.gov.tw/GreenLife/eng/E-GreenMark.aspx">http://greenliving.epa.gov.tw/GreenLife/eng/E-GreenMark.aspx</a>
Thailand	Green Label	<a href="http://www.tei.or.th/greenlabel">http://www.tei.or.th/greenlabel</a>
United States	Energy Star Programme (Environmental Protection Agency and Department of Energy)	<a href="http://www.energystar.gov/index.cfm?c=home.index">http://www.energystar.gov/index.cfm?c=home.index</a>
	Green Seal Product Standards and Certification Programme	<a href="http://www.greenseal.org">http://www.greenseal.org</a>

B. Other resources available for green procurement

Public Procurement Policy of the United Kingdom	<a href="https://www.gov.uk/guidance/public-sector-procurement-policy">https://www.gov.uk/guidance/public-sector-procurement-policy</a>
Green Procurement Policy and Guidance of USA	<a href="https://www.epa.gov/greenerproducts/epas-recommendations-specifications-standards-and-ecolabels">https://www.epa.gov/greenerproducts/epas-recommendations-specifications-standards-and-ecolabels</a>
European Platform on Life Cycle Assessment	<a href="http://ec.europa.eu/environment/ipp/lca.htm">http://ec.europa.eu/environment/ipp/lca.htm</a>



## Labels and Certificates – Photo Guide

Note: Environmentally-preferable products may have labels or certificates other than the ones listed here. For more information on them and their standards, please refer to the following website for a list of labels and certificates used worldwide: [www.globalecolabelling.net](http://www.globalecolabelling.net)



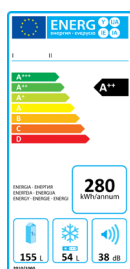
### Energy Star Label

Energy Star is an international standard for energy efficient consumer products originated in the USA. Devices carrying the Energy Star logo, such as computer products and peripherals, kitchen appliances and buildings, generally use 20%–30% less energy than required by US federal standards. Currently, Energy Star is the most widely-recognized international energy label.



### Electronic Product Environmental Assessment Tool (EPEAT)

EPEAT registration requires computers and some electronic products to meet additional standards (on top of obtaining the Energy Star label) concerning use of toxic chemicals/recycled materials and the products' end-of-life recyclability. EPEAT ratings can be bronze, silver or gold.



### EU energy label

The EU Energy Label is displayed on the packaging of most domestic appliances and light bulbs sold in the EU, as required by the energy consumption labelling scheme established by an EU directive. The labelled appliance's energy efficiency is rated from A to G, with A being the most energy efficient and G being the least efficient.



(This label is provided courtesy of EMSD)

### Voluntary grading-type energy label (by EMSD)

This energy label (under the Voluntary Energy Efficiency Labelling Scheme) provides information on the appliance's energy consumption and grades the appliance's energy efficiency on a scale of 1 to 5, with 1 being the most energy efficient and 5 being the least efficient.

The label may be found on electric storage water heaters, televisions and clothes dryers, as well as certain air conditioners, refrigerators and washings machines that are not regulated under the Energy Efficiency (Labelling of Products) Ordinance.



### Hong Kong Green Label (by of Green Council) (This label is provided courtesy of Green Council)

The Hong Kong Green Label Scheme (an independent, non-profit-making and voluntary scheme for the certification of environmentally-preferable products) sets environmental standards and awards the 'Hong Kong Green Label' to products with environment performance that meets these standards.

More about Hong Kong Green Label standards and a list of certified products can be found at:

<http://www.greencouncil.org/eng/greenlabel/cert.asp>  
[http://www.greencouncil.org/eng/greenlabel/HKGLS\\_List\\_eng.pdf](http://www.greencouncil.org/eng/greenlabel/HKGLS_List_eng.pdf)



Source: Energy Labels under Mandatory Energy Efficiency Labelling Scheme MEELS

### Mandatory energy label (by EMSD)

This energy label (under the Mandatory Energy Efficiency Labelling Scheme/MEELS) provides the appliance's energy efficiency information and grades the appliance's energy efficiency on a scale of 1 to 5, with 1 being the most energy efficient and 5 being the least efficient. For example, refrigerators that have obtained Grade 1 energy label typically use 41% less energy than Grade 3 refrigerators.

All air conditioners, refrigerators, CFLs, washing machines and dehumidifiers covered in MEELS are required by law to carry the MEELS energy label.

For details of MEELS, please visit the EMSD website :  
<http://www.energylabel.emsd.gov.hk/welcome.htm>



Source: Energy Labels under Voluntary Energy Efficiency Labelling Scheme VEELS

### Voluntary recognition-type energy label (by EMSD)

This energy label (under the Voluntary Energy Efficiency Labelling Scheme) is awarded to equipment that meets minimum energy efficiency and performance requirements stipulated by EMSD.

For a list of household appliances that can apply for this label, please visit:  
[http://www.emsd.gov.hk/en/energy\\_efficiency/voluntary\\_energy\\_efficiency\\_labelling\\_scheme/scheme\\_documents/index.html](http://www.emsd.gov.hk/en/energy_efficiency/voluntary_energy_efficiency_labelling_scheme/scheme_documents/index.html)



### Universal recycling symbol (many variations exist)

This logo shows that the product can be recycled.



### Logo for recycled products (many variations exist)

This logo shows that the product contains recycled materials.



### Resin identification codes

These codes marked on plastic items show the types of plastic used to make the items, and allow more efficient separation and recycling of plastic waste.



(Many variations of this label exist)

### RoHS-compliant label (EU)

The Restriction of Hazardous Substances Directive (RoHS), which restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment, was adopted in February 2003 by the EU. Any RoHS compliant component is tested for the presence of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Hex-Cr), Polybrominated biphenyls (PBB), and Polybrominated diphenyl ethers (PBDE). RoHS-compliant products must have less than the restricted amount of these six hazardous materials.

The maximum permitted concentrations of the six chemicals are:

1. Lead: 0.1% by weight
2. Mercury: 0.1% by weight
3. Cadmium: 0.01% by weight
4. Hexavalent chromium: 0.1% by weight
5. Polybrominated biphenyls: 0.1% by weight
6. Polybrominated diphenyl ether: 0.1% by weight



### RoHS-compliant label (China)

It restricts the use of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Hex-Cr), Polybrominated biphenyls (PBB), and Polybrominated diphenyl ethers (PBDE). The letter 'e' inside the green circle indicates that the product does not contain a higher-than-restricted amount of the six chemicals. If the circle is orange with a number inside, e.g. 5, it indicates that the product has restricted substances that are likely to leak out and cause harm to the environment in 5 years.

The maximum permitted concentrations of the six chemicals are the same as those stipulated by the EU RoHS.



### Water Efficiency Label

Labelling scheme by the Water Supplies Department that covers common plumbing fixtures and water-consuming appliances like water taps, showerheads and washing machines. Products are graded according to their water efficiency, with grade 1 (with one drop of water) products being the most water-efficient.

A list of water fixtures registered under the scheme can be found at:

<http://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/registers-of-all-wels-products/index.html>