### Greenery

Landscaping for Urban Spaces and High-Rises (LUSH)

LUSH is a comprehensive urban and skyrise greening programme comprising both Landscape Replacement Areas (LRA) requirements and incentives to provide greenery and communal spaces.

The LRA requirements are calibrated by location, GPR and development type. A development may count Sky Terraces, Communal Planter Boxes and Covered Communal Ground Gardens (see Greenery sub-tabs) amongst other features, towards meeting the LRA requirement.

Applicants may refer to the following self-help checklists for the applicable greenery requirements and information to be submitted for assessment: for private developments [here](/-/media/Corporate/Guidelines/Development-control/Documents/LUSH-Checklist-For-Private-Developments.pdf) and public sector developments [here](/-/media/Corporate/Guidelines/Development-control/Documents/LUSH-Checklist-For-Public-Sector-Developments.pdf).

<https://ura.gov.sg/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F09_Landscape_Replacement_Small.jpg?w=100%25>  
*Landscape Replacement Areas (View high-res illustration* [*here*](/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F09_LandscapeReplacement_Large.jpg)*)*

#### Landscape Replacement Areas (LRA) Guidelines in Strategic Areas

Developments in identified **Strategic Areas** shall provide LRA that is minimally equivalent to the development’s gross site area, as shown in the table and diagram below. At least 40% of the LRA requirement shall be reserved for softscape (permanent planting) areas. The remaining LRA requirement may be provided as hardscape.

The Green Plot Ratio (GnPR) provides an objective measure of the density of greenery within a site. The formula for computing GnPR and the minimum GnPR requirement is as follows:

<https://ura.gov.sg/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/GnPR_Calculation.png?h=100%25&w=100%25>

The Total Leaf Area shall be computed based on the Leaf Area Index (LAI) for each plant species, canopy area (for trees and palms) and the quantity planted. The plant species sub-categories and LAI values may be obtained online from NParks’ [Flora Fauna Web](https://www.nparks.gov.sg/florafaunaweb) by searching the common or scientific names of plants.

**LRA Requirements for Developments in Strategic Areas**

|  |  |  |
| --- | --- | --- |
| **Location** | **Developments in Strategic Areas** | **Developments in Strategic Areas Outside Central Area, with Height Control ≤80m1** |
| LRA (as a % of Site Area) | 100% | 70% |
| Minimum softscape requirement (as a % of Site Area) | 40% | 40% |
| Minimum GnPR requirement (Total Leaf Area/Site Area) | 4.0 | 4.0 |

*1 Building height is based on Singapore Height Datum (SHD).*

The **Strategic Areas** are as follows:

* Within Central Area: Downtown Core (part), Straits View (part), Marina South, and Orchard (part) Planning Areas, as well as 2 mixed-use parcels along Orchard Boulevard in Paterson Hill Subzone (see Plan 1-1);
* Outside of Central Area: Regional Centres and Growth Areas including the Jurong Lake District, Kallang Riverside, Woodlands Regional Centre, Punggol Creative Cluster, Tampines Regional Centre and Paya Lebar Central as well as commercial and commercial/residential developments within Town Centres (see Plans 1-2 to 1-26).

**List of Strategic Areas**

|  |  |
| --- | --- |
| **Plan** | **Location** |
| 1-1 | [Downtown Core (part), Straits View (part), Marina South, and Orchard (part) Planning Areas, as well as 2 mixed-use parcels along Orchard Boulevard in Paterson Hill Subzone](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-1.pdf) |
| 1-2 | [Ang Mo Kio Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-7.pdf) |
| 1-3 | [Bedok Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-8.pdf) |
| 1-4 | [Bishan Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-9.pdf) |
| 1-5 | [Boon Lay Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-10.pdf) |
| 1-6 | [Bukit Batok Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-11.pdf) |
| 1-7 | [Bukit Merah Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-12.pdf) |
| 1-8 | [Bukit Timah Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-13.pdf) |
| 1-9 | [Choa Chu Kang Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-14.pdf) |
| 1-10 | [Clementi Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-15.pdf) |
| 1-11 | [Geylang Planning Area (Paya Lebar Central)](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-3.pdf) |
| 1-12 | [Hougang Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-16.pdf) |
| 1-13 | [Jurong East Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-2.pdf) |
| 1-14 | [Kallang Riverside](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-1.pdf) |
| 1-15 | [Marine Parade Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-17.pdf) |
| 1-16 | [Novena Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-18.pdf) |
| 1-17 | [Pasir Ris Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-19.pdf) |
| 1-18 | [Punggol Planning Area (Punggol Creative Cluster & Learning Corridor)](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-5.pdf) |
| 1-19 | [Punggol Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-20.pdf) |
| 1-20 | [Sembawang Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-21.pdf) |
| 1-21 | [Sengkang Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-22.pdf) |
| 1-22 | [Serangoon Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-23.pdf) |
| 1-23 | [Tampines Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-4.pdf) |
| 1-24 | [Toa Payoh Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-24.pdf) |
| 1-25 | [Woodlands Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-6.pdf) |
| 1-26 | [Yishun Planning Area](/-/media/User-Defined/URA-Online/circulars/2014/jun/dc14-lush20/app1-25.pdf) |

The LRA requirement is not applicable to conserved buildings in historic conservation areas. URA may exercise flexibility on LRA requirements when evaluating individual developments affected by specific constraints.

The table below shows the guidelines for computation of LRAs in Strategic Areas. LRA in Strategic Areas is the sum of:

* Horizontal surface area of the softscape eg permanent planting beds;
* Horizontal surface area of the hardscape eg communal facilities, urban farm; and
* Vertical surface area of green walls and extensive green roofs (if any).

**Guidelines for LRAs in Strategic Areas**

|  |  |
| --- | --- |
| **LRA in Strategic Areas** | **Definition/Guidelines** |
| General Guidelines | To qualify as LRA, all horizontal areas shall be:   * unenclosed and open-to-sky, or * If covered, open sided, naturally ventilated, and qualify for GFA exemption under a LUSH incentive scheme (eg Communal Planter Boxes, Covered Communal Ground Gardens and/or, Sky Terraces). * Rooftop urban farms counted as GFA may be counted as LRA subject to the guidelines under the Hardscape Area section below.   All LRA shall be designed taking into account safety and maintenance considerations. |
| Softscape Areas | These are permanent, sunken planting areas which shall be designed with sufficient soil depth to accommodate a variety of plant types.  A minimum soil depth of 1000mm shall be provided for trees and palms, 500mm for shrubs and climbers, and 300mm for ground covers.\*  Potted plants do not count as softscape.  *\*As an alternative to providing sunken planting beds, building owners can provide well-landscaped, raised planting beds at maximum 300mm high, planted with trees or shrubs (ie no turfing allowed). This facilitates compliance with FSSD’s fire safety requirements on habitable space.* |
| Hardscape Areas | These are communal facilities (eg event plazas, playgrounds and water features), surrounded by lush landscaping. Fire engine accessways may be considered as hardscape areas if they are communally accessible in times of non-emergency and are surrounded by lush landscaping.  Covered Rooftop Urban Farms may count towards hardscape under the LRA requirement, up to 10% of site area and subject to the merits of the proposal.   * For crop protection, covers over rooftop urban farms may be allowed. * Such covered urban farm area may be allowed on Temporary Permission and counted as Gross Floor Area, subject to SLA levying Land Betterment Charge, where applicable. URA may consider allowing additional GFA for farms over and above the maximum permissible GFA under the Master Plan. * Prevailing building height controls shall continue to apply to any structures and equipment proposed at the roofs. Proposals within areas subject to Urban Design guidelines or Conservation requirements shall be evaluated according to prevailing controls. |
| Vertical Greenery & Extensive Green Roofs | May count towards either softscape or hardscape under the LRA requirement, up to 10% of site area.   The following guidelines shall apply:   * Vertical greenery shall be publicly visible, eg placed at external building facade fronting key pedestrian thoroughfares, major public spaces, and main entrance areas, etc. Vertical greenery for sites in Urban Design areas eg Central Area and Key Growth areas (see the Urban Design Guidelines on URA SPACE) may be subject to additional urban design requirements.\*\* * Extensive green roofs shall be of a substantial size to contribute to green cover and support biodiversity. Apart from maintenance purposes, extensive green roofs shall not be accessible for other users. Horizontal trellis-based greenery shall not qualify as extensive green roofs.   *\*\*For vertical green proposing support systems, planter boxes of minimum 500mm depth are encouraged to be provided at every storey for dense plant growth.* |
| Areas that do not qualify as LRA | Service facilities, eg vehicular drop-offs, drive ways, etc and its ancillary greenery.  Circulation areas, eg stairs, ramps, walkways, etc and its ancillary greenery. |
| Ownership | In strata subdivided developments, the LRAs shall be part of common property.  Building owners shall retain the required LRAs. |
| Clearance Process and Requirements | URA’s clearance of the completed Landscape Replacement Areas provided by developments within Strategic Areas is required before the Commissioner of Building Control issues the Temporary Occupation Permit (TOP), or Certificate of Statutory Completion (CSC) (when TOP is not required).  In your submission, please include accurately labelled photographs (in pdf file format) showing the completed Landscape Replacement Areas. URA will evaluate the photographs submitted and, if necessary, arrange for a site inspection before issuing the Clearance for the completed works.  Applicants are also required to declare upfront to the Commissioner of Building Control at the point of application for TOP or CSC (when TOP is not required), that URA’s Clearance is required for Landscape Replacement Areas before issuance of TOP, or CSC (when TOP is not required). |

#### Plan Presentation Requirements for Landscape Replacement Areas

A Landscape Plan for all Landscape Replacement Areas shall be submitted together with the Development Application, as illustrated below.

[*https://ura.gov.sg/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F10\_Example\_of\_Landscape\_Plan.jpg?h=100%25&w=100%25*](https://ura.gov.sg/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F10_Example_of_Landscape_Plan.jpg?h=100%25&w=100%25)

*Landscape Plan template (view high-res illustration* [*here*](/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F10_Example_of_Landscape_Plan.jpg)*)*

The plans shall include:

* Relevant plans, cross sections and perspectives with layouts of the softscape and hardscape areas. The softscape and hardscape areas shall be visually differentiated on plans with the following details:
  + Computations of the overall LRA, softscape areas and Green Plot Ratio;
  + Proposed schedule and annotation of plant species and paving materials;
  + Where relevant, annotations of ancillary uses eg Swimming Pool, BBQ Area, etc;
  + Where relevant, annotations of the 45-degree line;
  + Short statement on the proposed maintenance and irrigation methods for the planting.

Label and package the landscape plans and sections separately from the rest of the floor plans, and separate the softscape and hardscape areas into different layers.

URA’s approval is required if there are changes to the softscape areas (eg planting and structure of the planting beds) and hardscape areas that result in an overall reduction in area for the required LRAs.

URA’s approval is not required for changes to the planting species as long as the softscape and Green Plot Ratio requirements are complied with.

The following table for GnPR computation shall be filled in and submitted together with the landscape plans.

**Green Plot Ratio Computation Template**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **DECLARATION OF GREEN PLOT RATIO** | | | | | | |
| **Category** | **Unit** | **Sub category** | **LAI Value** | **Canopy Area/sqm** | **Qty/Planted Area** | **Leaf Area** |
| **(A)** | **(B)** | **(C)** | **(A) × (B) × (C)** |
| Trees | no | Open canopy | 2.5 | 60 | No |  |
| no | Intermediate canopy | 3.0 | 60 | No |  |
| no | Dense canopy | 4.0 | 60 | No |  |
| no | Intermediate columnar canopy | 3.0 | 12 | No |  |
| Trees | sqm | Planted at ≤ 2.0m trunk to trunk | (as above) | NA | sqm |  |
| Palms | no | Solitary | 2.5 | 20 | No |  |
| no | Cluster | 4.0 | 17 | No |  |
| Palms | sqm | Solitary (trunk to trunk ≤ 2m) | 2.5 | NA | sqm |  |
| Shrubs | sqm | Monocot | 3.5 | NA | sqm |  |
| sqm | Dicot | 4.5 | NA | sqm |  |
| Turf | sqm | Turf | 2.0 | NA | sqm |  |
| Vertical Greenery | sqm |  | 2.0 | NA | sqm |  |
| **(X) Total Leaf Area (sqm)** | | | | | |  |
| **(Y) Site Area** | | | | | |  |
| **(X/Y) Green Plot Ratio** | | | | | |  |

LUSH Incentives

The following incentive schemes can be used throughout the development to provide greenery and communal spaces.

#### Sky Terraces

Sky terraces are communal garden spaces provided at the intermediate storeys of a building.

To qualify for GFA exemption, sky terraces shall comply with the criteria in the following table.

|  |  |  |
| --- | --- | --- |
| **Item** | **Sky Terrace** | **Predominant Sky Terrace** |
| Sky terrace area as % of floor plate | Not applicable | The sky terrace area within the 45-degree line occupies equal to or more than 60% of the floor plate. |
| Perimeter openness | At least 40% of the perimeter of the sky terrace is to remain open1 and unenclosed. | At least 60% of the perimeter of the sky terrace is open1 and unenclosed. |
| 1 Parapet walls shall not exceed 1.3m in height to be considered open. | |
| Depth of sky terrace | The proposed depth of the sky terrace shall be minimally 5.0m throughout. | |
| Landscaping | Plants shall be incorporated on permanent and preferably sunken planting, planned with sufficient soil depth based on the types of plants proposed.  The planting shall be well externalized.  Some space shall be set aside for the provision of communal facilities and furniture to enhance the usage of the sky terrace.  As an alternative to providing sunken planting beds, building owners can provide well-landscaped, raised planting beds up to 300mm high, planted with trees or shrubs. This facilitates compliance with FSSD’s fire safety requirements on habitable space.  The sky terraces shall be designed with safety and maintainability provisions in mind. | |
| Accessibility and ownership | The sky terrace shall be accessible to all occupants of the building and there shall be at least one set of communal access via a lift or staircase serving the sky terrace. Secondary access to the sky terrace from strata units can be supported.            The layout of sky terrace floors shall be subject to evaluation to ensure that the sky terrace space is meant for communal use and is not treated as a privatised space. For sky terraces in residential developments that occupy less than 60% of the floor plates, the sky terraces shall serve a minimum of 2 strata units to ensure that they remain as communal space. They shall remain as common property in strata subdivided developments. | |
| Drop panels | Where proposed, drop panels at the perimeter shall be visually transparent and may be in the form of louvers, fins, transparent glass, or other sun shading/weather protective devices. The panel shall not exceed one third of the height of the external opening. The area of GFA exemption2 as defined by a 45-degree line shall be taken from the underside of any permanent or opaque structure, and not from the underside of a drop panel.   2 The 45-degree GFA exemption area may be taken from all external parapet walls (including recessed external parapet walls) surrounding the sky terrace. | |
| Additional height | Not eligible | Refer to Additional Height for Predominant Sky Terrace Storey sub-section. |
| GFA exemption | For sky terraces occupying less than 60% of the floor plate, the maximum area for GFA exemption of sky is defined by the area covered by a 45-degree line taken from the edge of the overhead projection. | URA may grant additional GFA exemption for residual areas beyond the 45-degree line (capped at 20% of the floor plate area), if such areas form an integral part of the sky terrace or are part of the barrier-free/fire escape corridors. |
| Unenclosed BFA and fire escape corridors may be exempted from GFA computation for all sky terraces regardless of size subject to the following criteria:   * The corridor lies within the 45-degree exemption area; * The corridor serves the sky terrace; and * At least 40% of the perimeter of the sky terrace is to remain open1 and unenclosed.   1 Parapet walls shall not exceed 1.3m in height to be considered open. | |
| Submission requirements | A Landscape Plan and relevant sections for the sky terrace showing the proposed landscaping scheme, planting palette, soil depth and communal facilities shall be submitted as part of the Development Application (see example below). | |

<https://ura.gov.sg/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F10_Example_of_Landscape_Plan.jpg?h=100%25&w=100%25>

*Typical Landscape Plan (view high-res illustration* [*here*](/-/media/Corporate/Guidelines/Development-control/Flats-Condominiums/F10_Example_of_Landscape_Plan.jpg)*)*

#### Communal Planter Boxes

Communal planter boxes shall comply with the following criteria:

* Maximum width of 1m;
* Minimum depth of 500mm (for planting purpose);
* To be sufficiently externalized.

Communal planter boxes which are more than 1.0m wide may be allowed if the wider planter boxes are part of an overall scheme with design merit.

Details of the communal planter boxes, including planting palette, spot sections showing soil depth, and dimensions shall be provided as part of the storey plans.

Communal planter boxes shall be designed with safety and maintainability provisions in mind.

#### Covered Communal Ground Gardens

Covered Communal Ground Gardens (C2G2) are on-ground greenery spaces at the 1st storey. The garden should flow seamlessly between the covered and uncovered spaces of the 1st storey and designed to be bright and airy with quality landscaping. There are two types of C2G2:

1. Predominant C2G2s shall occupy at least 50% of the first storey building footprint. Within the covered garden area, a minimum of 60% shall be lushly landscaped, while the remaining 40% can be set aside for meaningful communal gathering and activity spaces, and unenclosed communal facilities. These spaces may include garden paths, playgrounds, and covered pools. Covered drop-off points may be considered as part of the C2G2 if well-integrated, paved with appropriate material and integrated with lush landscaping.
2. Secondary C2G2 are communal landscaped areas on the 1st storey which are shaded by a structure or a floor or overhang above. These may be exempted from GFA computation up to a maximum area defined by a 45-degree line taken from the edge of the overhead projection. The GFA-exempted communal areas within the 45-degree line shall contain quality lush landscaping with a variety of vegetation.

All areas of C2G2 spaces shall be easily accessible to the public and/or building users during normal opening hours for the development. The communal ground garden shall not be easily enclosed and converted to any other uses in the future.

For GFA exemption for C2G2, refer to the [GFA handbook](/Corporate/Guidelines/Development-Control/gross-floor-area). URA will assess the C2G2’s design, spatial quality and overall integration with the wider landscaping scheme in considering the proposal’s eligibility for GFA exemption.

A landscape plan shall be submitted as part of the Development Application for the predominant covered ground garden proposal, showing the proposed landscaping scheme.

#### Communal Pavilions

Communal pavilions are small-scale, ancillary landscaping features that function as sheltered, open-sided resting points. Access to the pavilions shall be from the common areas only.

In addition to being sited within lushly landscaped areas, they shall satisfy the criteria below to qualify for GFA exemption:

**Guidelines for Communal Pavilions**

|  |  |
| --- | --- |
| **Location** | **Guidelines** |
| Ground Level | * Maximum 50sqm per pavilion\* * The pavilion coverage shall be counted towards the 40% (maximum) overall site coverage control. |
| Rooftop | Rooftops shall remain open-to-sky unless otherwise approved by URA.  Where rooftop pavilions are allowed, they shall comply with the following requirements:   * Maximum 500sqm\* or 50% of roof coverage, whichever is lower. * For developments which have reached the allowable storey height control, the pavilions shall remain open-sided when viewed externally. This is to ensure that the pavilions do not form an additional storey. * For developments which have not reached the allowable storey height or are not located within areas subject to storey height control, maximum 50% perimeter enclosure of the rooftop pavilions may be allowed. * Greenery on the rooftop shall be both enjoyable by the building users and visible from the surroundings. * Plants shall be incorporated on permanent and preferably sunken planting, planned with sufficient soil depth based on the types of plants proposed. Some space shall be set aside for the provision of communal facilities and furniture to enhance the rooftop. |
| \*The area is defined as the area of pavilion measured up to the roof eaves line. | |

A Landscape Plan and relevant sections for ground/rooftop spaces containing communal pavilions, showing the proposed landscaping scheme, pavilion dimensions, planting palette, soil depth, communal facilities, shall be submitted with the Development Application.

*Last updated on 29 November 2022*