

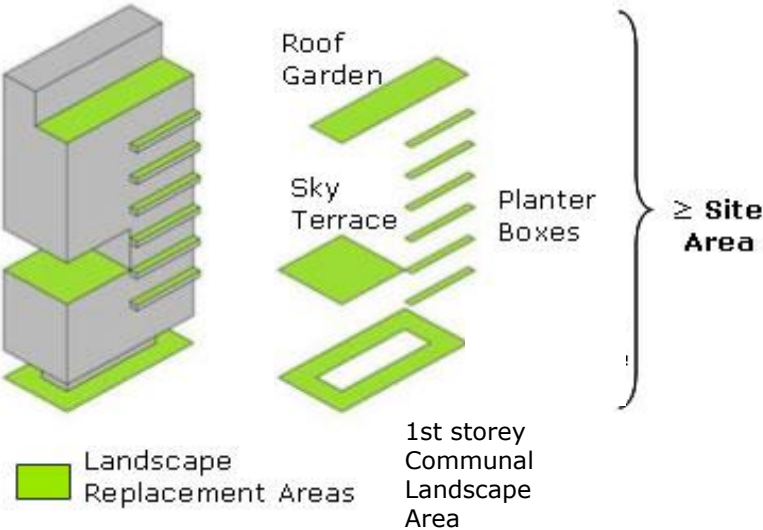
## AN OVERVIEW OF THE LUSH PROGRAMME

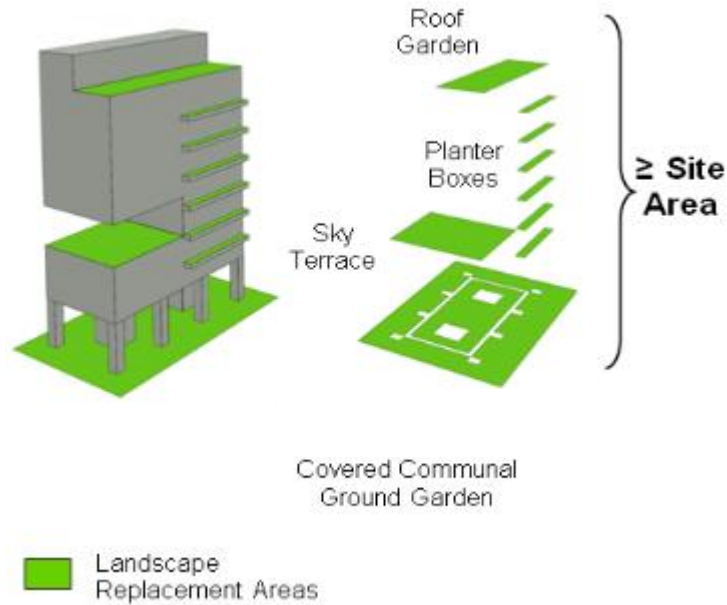
Details of all three instalments of LUSH are incorporated into the table below with key changes and enhancements highlighted. More technical details of the programme are available at <http://www.ura.gov.sg/uol/circulars.aspx>.

### LUSH & LUSH 2.0

### LUSH 3.0



No.	Guidelines	Details
1	<p><b>Landscape Replacement Scheme</b></p>	<p><b>LUSH (2009)</b></p> <p>Under the Landscape Replacement Scheme, developers must replace greenery lost from the site due to development, with greenery in other areas within the development.</p> <p>Developers can provide these replacement areas on the ground, rooftops or mid-level sky terraces. Greenery can be in the form of landscaping, roof gardens, sky terraces or planter boxes. Members of the public or occupants of the building should have easy access to enjoy these communal areas.</p> <p>The policy applies to new developments in strategic areas around Marina Bay, Kallang Riverside and Jurong Gateway.</p> <p><i>The diagram below shows the various types of Landscape Replacement Areas that could be incorporated within a development</i></p>  <p><b>LUSH 2.0 (2014)</b></p> <p><b>Extension to additional strategic areas</b></p> <p>The landscape replacement policy now extends to all new developments and redevelopments in these areas: Marina South, Orchard Planning Area (part), two mixed-use parcels along Orchard Boulevard in Paterson Hill Subzone, Woodlands Regional Centre, Punggol Creative Cluster, Tampines Regional Centre, and Paya Lebar Central as well as commercial and commercial/residential developments within Town Centres.</p> <p><i>The diagram below shows the revised types of Landscape Replacement Areas that could be incorporated within a development</i></p>



***New landscape replacement requirements for Residential and Commercial/Mixed-use/Hotel developments outside identified strategic areas***

There is a new set of landscape replacement requirements for non-landed residential, commercial, mixed-use and hotel developments that are located outside the strategic areas mentioned above. This specifically targets the provision of communal greenery (softscape area only). The quantum of greenery provision will commensurate with the developments' intensities. This means that more intensive developments are required to provide more greenery spaces. There is also a minimum ground greening requirement for residential developments to enhance the quality of our living environment.

**LUSH 3.0 (2017)**

***Additional types of greenery to qualify as landscape replacement areas***

1. Vertical greenery and extensive green roofs

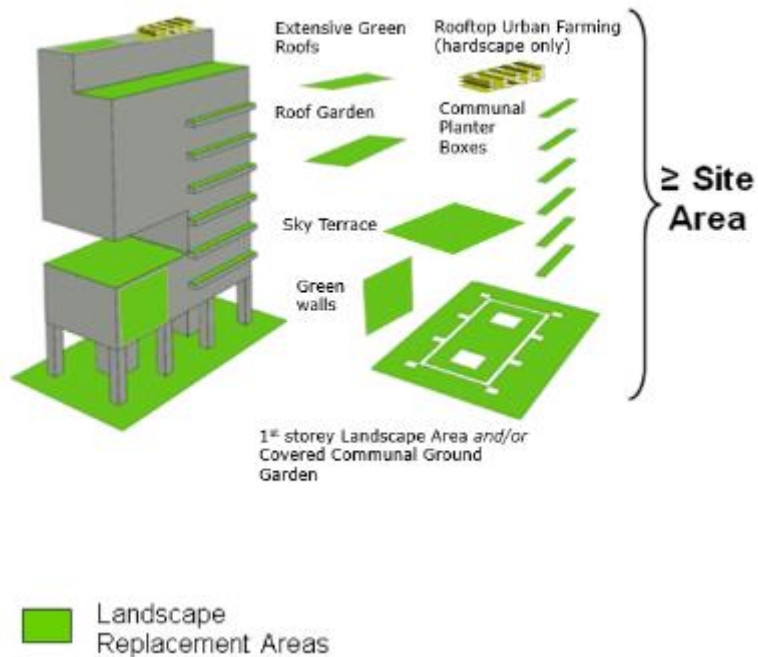
Vertical greenery and extensive (i.e. inaccessible) green roofs<sup>1</sup> will now be counted towards fulfilling Landscape Replacement requirements, up to a cap of 10% (as percentage of site area). This is in addition to the horizontal and communally accessible spaces with greenery that currently qualify as Landscape Replacement Areas (LRA). Such features can contribute to the environment and strengthen the sense of green and visual relief in the built environment.

<sup>1</sup> Extensive green roof are created by planting at inaccessible rooftops, mainly for ecological and aesthetic benefits. As they are generally not designed for active recreational use, the roof system is typically lightweight and plants selected are usually low maintenance.

**2. Rooftop urban farming**

Rooftop urban farming can also be counted towards fulfilling the Landscape Replacement requirement. Up to 10% of the hardscape area can be provided in the form of rooftop urban farms. Covers can be considered over farms for crop protection. The farms will be allowed on Temporary Permission and counted as Gross Floor Area (GFA). Bringing farms into high density areas and developments can help to support space provision and generate more interest for local farming.

**The diagram below shows the revised types of Landscape Replacement Areas that could be incorporated within a development**



**New Green Plot Ratio standards for landscape replacement areas**



There are new minimum Green Plot Ratio (GnPR) standards for developers providing Landscape Replacement areas. GnPR is computed using the following formula:

$$\text{Green Plot Ratio} = \frac{\text{Total Leaf Area of greenery within the site}}{\text{Development Site Area}}$$

GnPR is simply the greenery equivalent of building intensity, which is controlled by Gross Plot Ratio. GnPR is used as a proxy measure of the density of greenery planted within a site. The GnPR standards are pegged to the softscape requirements and will increase transparency to developers and building owners on the minimum standards of greenery required when providing Landscape Replacement softscape areas.

2	<p><b>Guidelines to encourage more innovative and better design of rooftops</b></p>	<p><b>LUSH 3.0 (2017)</b></p> <p>URA is extending the guidelines to free up rooftop space in commercial and hotel buildings to include more uses. Previously, covered mechanical and electrical (M&amp;E) equipment transferred away from the rooftop to one of the top three floors directly below the roof could be exempted from GFA computation if the rooftops were used for activity-generating uses like F&amp;B.</p> <p>Applicants can now apply for this GFA incentive if they propose urban farming, solar panels, communal roof gardens and green roofs at rooftops. This will support sustainability objectives to improve food resilience, increase take up of renewable energy, enhance community bonding and enhance Singapore's green cover.</p>
3	<p><b>Bonus Gross Floor Area (GFA) for Outdoor Refreshment Areas (ORAs) on landscaped rooftops</b></p>	<p><b>LUSH (2009)</b></p> <p>URA grants Bonus GFA over and above the Master Plan Gross Plot Ratio for rooftop outdoor refreshment areas (ORAs) in developments that converted their existing roof into a roof garden or green roof. This is applicable only to existing buildings within the Orchard and Downtown Core planning areas. This complements NParks' scheme to co-fund part of the installation cost for green roofs. ORAs are to be kept small-scale and enhance users' enjoyment of the rooftop greenery. Collectively, the scheme encourages existing building owners in these key activity corridors to landscape their roofs and introduce rooftop ORAs for the public and building occupants to better enjoy rooftop greenery.</p> <hr/> <p><b>LUSH 2.0 (2014)</b></p> <p><b><i>Extension to more developments and additional areas</i></b></p> <p>The bonus GFA incentive for rooftop ORAs will now extend to new developments and redevelopment proposals. The rooftop ORA incentive will also extend to commercial and mixed-use developments in parts of Singapore River.</p> <p>This encourages new building owners to incorporate rooftop ORAs and required landscaping as part of their overall design of the development from the start. In this way, we will be able to realise more of such green rooftop features.</p>
4	<p><b>GFA exemption for covered communal ground gardens</b></p>	<p><b>LUSH (2009)</b></p> <p>URA grants GFA exemption for communal landscaped areas on the first storey to encourage generous provision of communal greenery on the ground level of developments. The extent of GFA exemption is limited by a 45-degree line taken from the edge of the overhead projection.</p>

		<p><b>LUSH 2.0 (2014)</b></p> <p><b><i>More flexibility to consider more covered areas of communal ground gardens for GFA exemption</i></b></p> <p>GFA exemption will now extend to additional covered spaces beyond the area defined by the 45-degree line at the ground level if they provide substantial ground greenery with good spatial quality as part of an overall plan that proposes lush landscaping at the ground level. Through this, we hope to activate more green spaces on the first storey so that the public can experience more generous greenery on the ground level.</p>
5	GFA exemption for communal planter boxes	<p><b>LUSH (2009)</b></p> <p>URA grants GFA exemption for planter boxes to facilitate greening up of developments. The extent of GFA exemption is limited to a width of 1m for the planter boxes.</p>
		<p><b>LUSH 2.0 (2014)</b></p> <p><b><i>More flexibility to consider wider communal planter boxes for GFA exemption</i></b></p> <p>GFA exemption will now extend to communal planter boxes that are more than one metre wide if the wider planter boxes are part of an overall scheme designed to enhance greenery provision for the development. Together with the communal green spaces at the sky terraces and roof gardens, these planter boxes that are designed as part of the integrated landscape scheme would provide a variety of functional green spaces for building occupants or the public to enjoy.</p>
6	GFA exemption for communal sky terraces	<p><b>LUSH (2009)</b></p> <p>Covered sky terraces are exempted from GFA computation depending on the quality of the proposed landscaping and communal facilities provided. The extent of GFA exemption is also higher if developers choose to build lofty sky terraces. The aim is to encourage more covered public spaces that can serve as visually-attractive green gathering spaces for the public or building occupants.</p> <p><b><i>The photo below shows the covered sky terrace area that is exempted from GFA computation (area as defined by a 45-degree line taken from the overhead projection)</i></b></p>

		
7	<b>Landscaped decks</b>	<p><b>LUSH (2009)</b></p> <p>URA grants developers additional height above the natural ground level to encourage them to tuck their multi-storey car parks under a deck that is covered in greenery. As part of the landscaped deck guidelines, we encourage porous fencing (instead of a solid boundary wall) around the perimeter of their developments so that the lush greenery along the side of the deck can be enjoyed by neighbours and passers-by.</p> <p><i>The photo below illustrates the porous fencing along the boundary to externalise the greenery on the landscaped deck</i></p> 
8	<b>Bonus GFA for balconies in residential and hotel developments</b>	<p><b>LUSH (2009)</b></p> <p>URA grants bonus GFA for balconies in residential and hotel developments capped at 10% of the total GFA of the development. The objective is to encourage developers to provide semi-outdoor spaces that also help to facilitate planting in our high-rise environment.</p>

9	<b>GFA exemption for rooftop pavilions</b>	<p><b>LUSH (2009)</b></p> <p>URA grants GFA exemption for rooftop pavilions if they are designed as part of a rooftop garden with landscaping that occupy at least half of the roof space. These pavilions should be open-sided and not be too big in size.</p>
10	<b>Provision of green buffer and peripheral planting strip</b>	<p><b>LUSH (2009)</b></p> <p>URA requires developers to set aside land along the boundaries of their development as well as fronting public road for tree planting that will augment road side planting.</p>