



ELEMENTS OF LANDSCAPE CONSTRUCTION



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ROWLAND I. AGULLANA

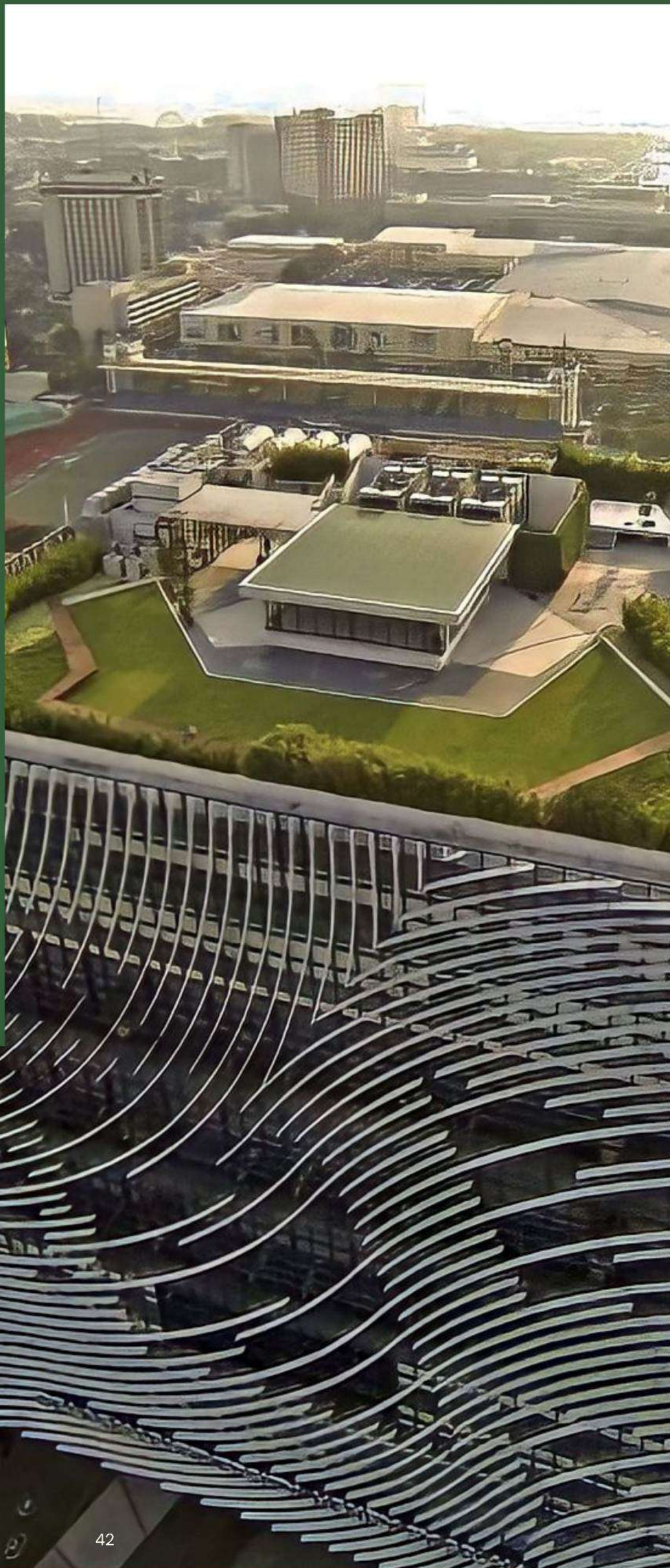
Architect

President of LACISAP

Arch. Rowland has dedicated more than 17 years of practice in studying, conceptualizing and is into realization of design works in the interest of Architecture and Architectural Building Sustainability and Solutions.

He is the CEO of Cubesystem, Chargecube and the current president of LACISAP (Landscape Contractors and Industry Specialists Association of the Philippines) where he co-founded the first Philippine Garden Festival.

Rowland is also the Principal Architect of CS Design studio that offers 360° design solution that includes Architecture, Interior design, Environmental design, Arboriculture, Rain water harvesting, Urban farming, and EV charging infrastructure.



Toward a Sustainable Direction: Embracing Skyrise Greeneries

By Archt. Rowland Agullana

The term "Skyrise greenery" pops up as pertaining to the integration of green roofs and green walls into urban buildings. Encompassing both rooftop greenery and vertical greenery, skyrise greenery seeks to add a new dimension of complementary greenery into our urban environment.

Benefits of Green Roofs & Green Walls

- Allows for a greener skyline
- Provides visual relief from urban environments "Plants can add visual interest to plain walls and roofs and soften the 'straight edged' features of industrial and commercial properties." (Liesecke et al., 1989).
- Enhances architectural designs by creating iconic landmarks in the city
"A layer of plants can enhance good design or disguise bad design's in building."
- Screens and isolates views (green walls)
- Revitalizes public areas



Public Safety Savings and Loan Association, Inc. | Green Roof



Treveia's Green Home, Laguna

Environmental Benefits

- Reduction of the Urban Heat Island effect and regulation of the microclimate through the following:
 - Incoming solar radiation and heat gain through the roof can be reduced dramatically. Roof surface temperature can be heated to a high of 58 °C during the day and this heat gets re-radiated into the surrounding area at night
 - Rooftop greenery reduces roof surface temperature by a maximum of 31 °C
 - Vertical greenery reduces wall surface temperature by a maximum of 12 °C
 - Temperature reduction efficiency varies with system typology, profile thickness, type of substrate, irrigation frequency, substrate water retention capability, and plant shading coefficient.
 - Rooftop gardens reduce ambient air temperature by as much as 4.2°C
 - Green walls reduce ambient air temperature by as much as 3.3°C.
 - The shading effects of plants are so good that they don't just reduce heat from entering buildings but actually result in heat loss from the building.
- Improving air quality through absorption of pollution and dust.
- Reducing the greenhouse effect by CO₂ absorption.
- Stimulating biodiversity through the creation of additional natural habitats for birds and insects within the city.
- Rainwater retention: reducing and slowing the peak discharge of local drainage systems leading to fewer ensuing floods.
- Therapeutic effect of plants and green landscape.
- Absorption of airborne sound.

Economic Benefits

- Reduction of cooling loads through better insulation and shading.
- Improvement of acoustic insulation.
- Increase in property values.
- Protection of building surfaces.
- More usable space.
- Cultivation of vegetables and organic food



Sky Suites | Landscaping



Types of Green Roofs

Intensive Green Roof Systems

- Intensive green roofs, usually called 'roof gardens', are developed to be accessible for use (Scholz-Barth, 2001). Hence, they usually incorporate areas of paving and seating.
- The added weight, higher capital cost, intensive planting, and higher maintenance requirements characterize intensive green roofs (Peck et al., 1999).
- The plant selection ranging from ornamental lawns, shrubs, bushes, and trees consequently affects the weight, build-up heights, and costs of the roof garden.
- Furthermore, regular garden maintenance such as mowing, fertilizing, watering and weeding is required for intensive landscapes.



Extensive Green Roof Systems

- Extensive green roofs are not designed for public use and are mainly developed for aesthetic and ecological benefits (Scholz-Barth 2001).
- Extensive systems can be placed on concrete or metal roofs and are distinguished as being low-cost, lightweight (50-150 kg/m²), and with shallow mineral substrates. Minimal maintenance is required and inspection is performed once or twice a year.
- Plants selected tend to be low maintenance and self-generative.



Types of Green Walls

Green façade

Green façades consist of planters and trellis-like structures to support climbing plants or growing plants directly against a wall.



Grand Hyatt Hotel | Green Wall



Public Safety Savings and Loan Association, Inc. | Green Wall

Living wall

Living walls or green walls are self-sufficient vertical gardens attached to the exterior or interior of a building. The chosen plants root on a structural support fastened to the wall itself. They then receive water and nutrients from within the vertical support instead of from the ground.