Principles of a Sustainable UP Diliman Campus
Taken from the UP System-Master Development Plan Report
Prepared by the Office of the Design and Planning Initiatives

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Principles of a Sustainable UP Diliman Campus
1. OBJECTIVES OF THE MASTER DEVELOPMENT PLAN

A Master Development Plan (MDP) for a university is formulated to achieve the following general objectives:

- To serve as the framework for the entire campus
- To stimulate, govern and control development
- To designate land-use zones
- To indicate road and pedestrian networks so as to guide the development
1. OBJECTIVES OF THE MASTER DEVELOPMENT PLAN

Specifically, the MDP is usually aimed to:

• establish a framework for the physical growth and change that can be anticipated for the next 15 years and to serve as the basis for re-planning and development beyond the planning period.

• translate the preferred spatial strategy into future land use patterns that will guide land allocation for various academic activities and support facilities consistent with the mandate, vision, and development goals of the university.

• establish projected space and utility needs of the university.

• define a framework for the orderly development of all capital improvements, including locations and priorities.

• formulate building design and landscape policies and guidelines that address energy, environment, and e-concerns of the university.
2. UP SYSTEM MASTER DEVELOPMENT PLANNING PRINCIPLES

2.1 Institutional Autonomy

• Exercise the responsibility and accountability to determine the nature and direction of the development of its lands in order to improve institutional quality and strategic management capacity.

2.2 One University Concept

• Set a common architectural character for sites and buildings while factoring in unique contexts of the various sites of the university.
• Formulate standards, harmonized systems, and shared services with decentralized execution.

2.3 Integrated Campus Planning

• Translate the preferred spatial strategy into future land use patterns that will guide land allocation for various academic activities and support facilities.

2.4 Hierarchy of Discourse Areas

• Create venues for speech and discourse of various settings and sizes within buildings and sites in the campus premises.
• Encourage discussions and debates and enhance the creation of new ideas, principles and knowledge among students, faculty and staff.
2. UP SYSTEM MASTER DEVELOPMENT PLANNING PRINCIPLES

2.5 Campus Entrepreneurship
• Explore the entrepreneurial opportunities and activities that exist in the campus.

2.6 Cultural Heritage Preservation
• Preserve tangible culture such as buildings and works of art, and natural heritage such as landscapes and biodiversity.

2.7 Tourism Promotion and Development
• Formulate a tourism program for the campuses: identify potential tourism spots, develop these areas as prime tourist destinations and develop annual tourism events.

2.8 Use of Innovative Technologies
• To be globally competitive, apply new and appropriate technologies in the development of transport, communications, utilities, and support systems.

2.9 Bicycle and Pedestrian-Friendly Community
• Provide bicycle and foot paths, maintain/improve the bikeways and sidewalks, and make safety devices available for bicycle parking areas and pedestrian walks, among others.
2.10 Social Responsibility
• Be sensitive to the basic needs of the country and of the communities surrounding the campuses.

2.11 Symbiotic Existence
• Accommodate University-accredited residents who will service the University and its constituents in various capacities for a limited time period according to existing laws and regulations.

2.12 Environmentally Sustainable and Risk-Sensitive Design
• Promote environmentally sustainable and green architecture design
• Reduce the negative impacts of the construction of buildings on the natural environment and promote the comfort, safety and well-being of its users.

2.13 Operational Efficiency
• Formulate policies and programs that mandate or provide incentives that implement energy efficiency programs in their utility operations.
• Incorporate innovative energy efficiency technologies in the overall building and utilities design and planning to achieve improvements in utility generation, transmission, and distribution.
2. UP SYSTEM MASTER DEVELOPMENT PLANNING PRINCIPLES

2.14 Protection and Enhancement of Wildlife
• Overlay protected zones in the existing land use plans and other land assets and superimpose additional regulations specifically targeted to protect important physical characteristics.
• Design the university’s land assets for wildlife habitat protection and for the healthy co-existence of people and wildlife.

2.15 Promotion of Urban Agriculture
• Contribute to food security and food safety, through bio-intensive and energy-saving food production methods in unutilized land areas.

2.16 Consultative Planning
• The MDP shall be based on an overall shared planning vision and development framework which will be developed with key stakeholders through a process of meetings and consultations focused on solutions.
3. LAND USES AND ZONING

a. Campus Core
   • The historic and unifying center of the campus, wherein its pioneer buildings, heritage trees and other campus elements shall be maintained and shall inspire all future developments on-campus.

b. Academic Zone
   • Where faculty, students and staff shall engage in the basic academic activities of instruction, research and extension, with the facilitation of administrative activities, which shall collectively lead to academic excellence.

   ACAD-1 – composed of academic clusters based on the unit’s or college’s specialties
   – where teaching and research activities are situated, normally in choice positions around the Campus Core

   ACAD-2 – academic support zone composed of research and extension services
   – interdisciplinary managed in order to enhance the networking functions of related colleges

c. Science and Technology Parks
   • Where the university links with business/industry for the generation of the basic materials and technological innovations that shall drive the knowledge economy

d. Resource Generation Zone
   • For the generation of resources, both income and knowledge-based, the benefits of which shall redound to the students, faculty and staff
3. LAND USES AND ZONING

e. Residential/Mixed-Use Zone

- For residential and related activity needs of faculty, staff, students and other constituents
- On-campus

R-1
- single-detached, duplex and townhouse type designs for faculty and staff
- land/buildings and land only leased out at market rates to accredited lessees according to a predetermined time frame
- two other allowed land-uses:
  - Faculty-student village: rooms can be rented out to students
  - Creative Arts Business Incubator Zone: faculty/staff-established entrepreneurial activities

- Indoor Art Gallery/ Outdoor Art Plaza
- Food Technology Incubator Restaurant
- Herbal Medicine Center
- Design and Drafting Services
- Green Contraptions Development for the House (Mechanical & Electrical Engineering)
- Music Making and Performance Incubators

- uses that are NOT PERMITTED:
  - Massage Parlors and Spas
  - Funeral Parlors and Crematorium
  - Liquor Shops and selling of liquor in restaurants
  - Pollutive industrial activities (noise, dust, bad smell)
  - Poultry, Piggery and commercial raising of animals
3. LAND USES AND ZONING

e. Residential/Mixed-Use Zone
   • For residential and related activity needs of faculty, staff, students and other constituents
   • On-campus
     R-2 – medium rise walk-up dormitories located in clusters for faculty and students
     – allow the conversion of the ground floor to house services for the occupants
     – allow a central clubhouse/facility for rest and recreational spaces
     R-3 – for university-accredited residents who service UP in various capacities
     – adopt a system of accreditation to accommodate bona fide informal settlers as follows:
       ➢ length and attribute of stay
       ➢ types and quality of offered service to the university
       ➢ quality of dwelling
       ➢ willingness to sign a lease-contract with the university involving amount and time of lease
       ➢ no criminal record, etc.

f. Community Services
   • For the siting of community facilities that shall communally serve the university, including the immediate families of faculty, students and staff
   • Shall include the following facilities:
     ➢ University Shopping Center and/or Mall
     ➢ University Hotel and Convention Center
     ➢ University Health Service
3. LAND USES AND ZONING

g. Other Parks and Major Open Spaces
• Large tracts of green spaces of the campus
• Allows a variety of passive and active human activities
• Allows the integration of softscape and hardscape in a designed exterior environment
• Shall include the following range of activities:
  ➢ Active sports activities (soccer and baseball field, running track, marching grounds,)
  ➢ Discourse areas (amphitheater, plazas, outdoor music arenas, demonstration corner)
  ➢ Passive open areas (parks and playgrounds, meditation gardens, outdoor study areas)
  ➢ Animal grazing area for sports and recreation (Horse grazing and stud farm, bridle path)
  ➢ Transportation network (roads and parking, pedestrian paths and bikeways)

h. Protected Forests, Waterways, Wetlands and Geo-Hazard Areas
• Designated zones which shall remain untouched
• Shall be used mainly as an Urban Wildlife Habitat (UWH) for academic purposes with minimum or no negative human intervention
• Shall be composed of four important components:
  ➢ Shelter for wildlife
  ➢ Bodies of water
  ➢ Food
  ➢ Place to rear the young
3. LAND USES AND ZONING

i. Historical and Tourism Districts
   • Where historically and/or architecturally significant buildings or structures are preserved and/or developed for their heritage and tourism potential

j. Agricultural Zones
   • Expanses of urban land and wetlands preserved and protected for agricultural production and educational purposes

   AGRI-1 – low land-use intensity where mechanization is limited
   – local plant varieties are propagated without the use of fertilizers and pesticides
   – yields depend primarily on the fertility of soils and environmental conditions

   AGRI-2 – medium and high land-use intensities where mechanization is needed
   – improved plant varieties are used with application of fertilizers and pesticides

   AGRI-3 – pasture land where quality of management of the land can be assessed by the carrying capacity of the area and the actual number of animals grazing the area
THE UP DILIMAN EXAMPLE
THE UP DILIMAN EXAMPLE

4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.1 One University Concept

a. University Avenue
   • main entrance designed as a wide and scenic thoroughfare, lined with big endemic and/or indigenous trees and with properly-maintained year-round landscaping
   • the gateway to the campus grounds
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.1 One University Concept

b. University Central Park
- establishes the campus core as the central unifying element of the whole campus plan, from which the major avenues stem out and around which the principal buildings shall be built
- preserved and protected land bound on all sides by arterial roads that accommodate both vehicular and pedestrian traffic
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.1 One University Concept

b. University Central Park
   • pioneer buildings shall be the only structures allowed:
     Main Administration Building – ‘head’ of the campus
     Main Library – ‘heart’ of the campus
     Oblation Statues
     Carillon
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.1 One University Concept

c. University/Academic Oval
   • shall serve as the main artery where all campus roads converge or lead to
   • envisioned to have greater road capacity for vehicular, bicycle and pedestrian traffic
   • may accommodate significant academic support structures such as enclosed or open places of assembly, student union building and the likes around it
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.1 One University Concept

d. "One-Look" Concept

- in the University Central Park and around the Academic Oval, building design should manifest the following five principles of visual aesthetics:
  - formal balance
  - monumental scale
  - good proportion
  - rhythm
  - institutional character

THE UP DILIMAN EXAMPLE
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.2 Integrated Campus Planning

- Clustering and organization of buildings shall be carefully planned as to consider HIERARCHY AND CONNECTEDNESS of both interior and exterior spaces.
4.3 Hierarchy of Discourse Areas

- treats various open spaces of the campus as centripetal spaces for free speech, exchange of ideas and intellectual and creative discussions

- developed according to the following hierarchical spaces:
  - amphitheater – largest central open field for campus-wide events
  - academic cluster courtyard – central open grounds for each academic cluster
  - department or college courtyard – main open grounds surrounded by college buildings
  - building quadrangle – smaller plaza of a single building
  - lobbies and nooks – small interior discourse areas for all buildings
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.4 Campus Entrepreneurship

- designate indoor and outdoor spaces as technology and creative arts incubators where students, faculty and staff may explore and exhibit entrepreneurial skills and activities
- based in the various academic and academic support clusters and residential and resource generation areas
- conduct events that promote entrepreneurial education, intercampus correspondence and exchange of ideas and goods with outside companies

4.5 Cultural Heritage Preservation

- preserve, conserve and protect historical campus grounds and facilities, as provided for in R.A. 10066, known as the National Cultural Heritage Act of 2009, and its IRR, through the reuse of materials and the monitored renovation of facilities to lower the ecological footprint of the campus
- damages to or the demolition of heritage structures and their surrounding habitat should be avoided
- create incentives for the conservation of historic and cultural heritage properties and disseminate heritage preservation guidelines and codes to ensure community participation
THE UP DILIMAN EXAMPLE

4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.6 Tourism Promotion and Development

4.7 Use of Innovative Technologies
4.8 Bicycle and Pedestrian-Friendly Community

a. Bicycle Traffic
   • delineate bicycle-exclusive lanes along major thoroughfares and create bike paths that allow bikers to traverse and have access to the major buildings/areas in the property
   • construct bicycle parking and support facilities that are secure, visible and accessible

b. Pedestrian Traffic
   • provide a comprehensively designed pedestrian system that will seamlessly link the outdoors to indoors, bringing pathways through buildings at varying grade levels all throughout the campus
   • reinforce the sense of UPD as a walkable place to enliven social interactions
4.10 Symbiotic Existence

• acknowledges the indigenous or local communities who have inhabited portions of the university years ahead of the establishment of its extent and boundaries
• proposes a system of accreditation wherein the university remains the legal owner of the lands but grants selected residents or communities the privilege of continued occupancy in the property

Services/Responsibilities of the University to the Accredited Residents
• Lease lands based on university rules and regulations and existing laws
• Upgrade slum areas, using local government funding, into safe and habitable communities with the following facilities:
   Access to water
   Sanitation
   Secure tenure
   Durability of housing
   Sufficient living area
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.10 Symbiotic Existence

Services/Responsibilities of the Accredited Residents to the University

• Faithfully furnish accorded land lease payments to the university and accomplish tax payments to the local government

• Provide rooms/structures as on-campus student housing extensions: guarantee safe, conducive and quality lodging and study spaces that meet the university requirements

• Render essential services such as eateries, laundry shops, drinking water stores, repair shops, and other small-scale retail businesses to the community’s student population

• Ensure a safe and livable neighborhood where the houses and facilities are kept in good and durable condition, undertaking repairs and renovations when necessary

• Act as custodians of the university in safeguarding their respective communities from possible informal settlers and other intruders
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.11 Green University: Environmentally Sustainable and Risk-Sensitive Design

4.12 Operational Efficiency

- use new technologies which will ensure the judicious use of energy

Rainwater Harvesting System
Solar Water Heating System
Grey Water Recycling System
Green Pipes
Water-saving WC
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.13 Protection and Enhancement of Wildlife
4. PHYSICAL TRANSLATION OF PLANNING PRINCIPLES

4.14 Promotion of Urban Agriculture
THE SUSTAINABLE DESIGN PRINCIPLES

5. LANDSCAPE AND URBAN WILDLIFE HABITAT

5.1 Natural Landforms

- preserve and maintain natural landforms unless they pose potential danger or damage to the property and its constituents
- areas proclaimed unbuildable by government codes shall remain free of any construction
- Land cut-and-fill operations may be permitted once certified safe by University-acknowledged experts

5.2 Water Features

Natural Bodies of Water

- preserve and maintain natural bodies of water unless they pose potentially danger or damage to the property and its constituents (i.e. breeding ground for mosquitoes, etc.)
- where necessary, to enhance the natural body of water or to prevent potential damage/danger, rehabilitate it and its immediate surroundings with minimal physical changes. New construction should be avoided
- no body of water shall be altered or improved if the process may introduce negative effects to the natural drainage of the property or a part thereof

Artificial or Man-made Bodies of Water

- build new canals or catch basins only to enhance the natural drainage of the property or a part thereof
- allow the construction of artificial or man-made water features only after a thorough study of the site’s ecological characteristics. Minimal flora and fauna shall be damaged by such construction
- incorporate sustainable design techniques, such as the use of grey water, in new water features
5.3 Open Spaces and Plazas

- create a basic level of cohesiveness between adjacent buildings and landscapes to enhance the overall legibility and identity of the campus.
- assure visual continuity through consistent use of specific materials, site furnishings and plantings

**Green Academic Areas**

- designate and design key open spaces to support land-based teaching, research, community engagement and athletics as well as ancillary buildings and structures
- serve as nodes or focal points to enhance its surrounding buildings/areas and to accommodate both academic and non-academic functions

**Greenway**

- a continuous, multi-use people-oriented corridor that extends throughout the campus to promote linkages between various areas
- provide a network of interconnecting open spaces which serve to physically link buildings and adjacent green edges throughout the campus

- Incorporates a substantial ‘green’ component, varying from a formal treatment in the academic core to a more natural approach towards the outlying areas of the campus
5.3 Open Spaces and Plazas

Green Edges

• provide a natural edge to roadways and wildlife habitat by creating a sense of a community in a forest setting
• maintains a sustainable treed space which meets ecological, buffering and aesthetic objectives
• incorporates a variation in the nature of the spaces, ranging from a more manicured to a more natural vegetation of areas
• shall be connected physically and design-wise to the greenway and adjacent open spaces
Planting

- maintain a sustainable treed space which meets ecological, buffering and aesthetic objectives
- avoid planting trees with invasive root systems in areas near utilities, pavements, curbs, walls and other structures; where unavoidable, use root barriers to protect existing or proposed utilities and structures
- for new construction, the contractor of the project should plant a predetermined number of trees corresponding to the total floor area of its proposed structure

Paving

- as much as possible, use recycled paving materials that provide parts for plants and soil to assist in direct water seepage to the ground
- where possible, use paving materials instead of whole concrete or asphalt pavement
5.5 Fences and Lighting

Fences
- the campus boundaries must be appropriately fenced in order to clearly delineate its extents
- locate main gates strategically so that both security and access to the University is optimized
- discourage construction of fences for individual lots and buildings and use low plants, seating walls and free-standing benches as visual separators instead

Lighting
- provide proper nighttime illumination in open spaces, gates, pedestrian walkways and bicycle paths, as well as public artworks
5.6 Urban Wildlife Habitat

Endemic Trees

Native Trees Policy for university campus

- for new and additional trees, plant only indigenous or endemic species for landscaping and commemoration purposes:
- eliminate existing introduced or exotic species of trees by attrition and replace such with native species when they die
- where appropriate, University officials may seek permits from the appropriate government agency to gradually replace standing exotics with native species
- exotic species may be planted for experimental purposes and for commercial tree farms only in designated areas that shall not be part of the landscaping of campuses

Wildlife

- identify tracts of land which are densely inhabited by wildlife, both flora and fauna, and preserve these areas as protected zones where no construction or any human intervention shall be allowed
- includes areas with prominent natural water features, bird corridors and other biological “hotspots”
6. ARCHITECTURE AND URBAN DESIGN

6.1 Space Efficiency

- Maximize the built space based on the footprint of new buildings and by modest but carefully considered additions and extensions in existing buildings
- Match new uses to the existing built form in refurbishment projects
- Provide a high ratio of usable area to gross built area
- Provide versatile space, furniture and fittings that can be used for different activities
- Specify design features that allow different activities at different times
- Optimize space standards and furniture sizes for effective work
- Create versatile office and research space, with appropriate open plan areas, supplemented by meeting quiet spaces

6.2 Energy Efficiency

- Conduct energy analyses and assessment of the various system performance requirements of a building prior to design and construction
- Use passive cooling techniques and maximize daylighting
- Use of LED to replace lighting fixtures
- Consider alternative energy sources
- Formulate policies and incentives on energy conservation
6.3 Passive Fire Prevention Techniques

- Incorporate passive fire prevention techniques in building design through the use of fire-resistance rated walls and floors, fire doors and windows with fire-rated glazing and framing, fire and smoke dampers, fireproofing structural components, and compartmentalizing the building into separate zones.
- Strict compliance with the provisions of a government Fire Code.

6.4 Building Automation

- Adapt building automation systems for buildings using complex equipment to centralize management and control of facilities such as VAC, lighting, etc.
- Employ passive design techniques for buildings not needing mechanical VAC or pump systems.

6.5 Sustainable Development

- Apply the principles of Green Architecture during the design stage, incorporating low-energy and low-cost alternatives to building materials and construction.
- Where possible, comply with green building frameworks (local version of LEED).
- Adaptive re-use of old yet still structurally sound buildings.
6.6 Advanced/Futuristic Technology

- Establish the campus as an “online university” by creating wireless internet hotspots within the campus
- Enable online transactions for the university offices to improve work systems and procedures
- Regularly update equipment used for academic purposes such as medical and laboratory equipment, computer hardware, etc.
- Regularly update library and information sources both in hardcopy and digital form

6.7 Preventive Maintenance

- Conduct regular routine inspection and maintenance on all building facilities, systems, fixtures and finishes, and equipment to correct incipient failures and prevent the need for more costly repairs

6.8 Safe Building Features

- Strict compliance with the provisions in the national Building Code and Fire Code for safety of buildings
- Ensure that the active fire prevention system and components of the building, i.e. fire alarms, sprinklers, fire extinguishers, are available, sufficient and functional
- Keep fire exits and fire exit routes free from obstructions
- Conduct regular structural inspection and maintenance, especially for old buildings, to ensure the structural integrity of buildings
6.9 Culture Sensitivity

- Design the building and its surrounding landscape with sufficient consideration and respect of the campus’ academic and local character including its history, traditions, symbols, and local setting as well as the social aspects of its local inhabitants, regardless of the building’s use

6.10 Indoor Thermal Comfort

- Incorporate passive cooling techniques in the building design
- Enhance comfort by studying the nature of work of the building’s users
- Regulate room temperature and daylight penetration to ensure work efficiency
- When necessary, use mechanical and HVAC systems if indoor thermal comfort cannot be achieved through passive techniques alone or during power loss

6.11 Proper Day lighting

- Implement a thorough and efficient day lighting design by defining day lighting performance goals and design criteria and developing day lighting design alternatives
- Provide ambient lighting requirements during daytime hours for the majority of the year
- Create uniform distribution of daylight to reduce uncomfortably high brightness ratios
- Control direct sunlight when necessary and utilize beneficial passive solar strategies when appropriate
- Allow for user adjustment and override
- Ensure adequate daylight to all occupants of the spaces
- Integrate day lighting with other building systems
- Achieve significant energy savings by reducing lighting energy costs and associated cooling energy costs
THE SUSTAINABLE DESIGN PRINCIPLES

6. ARCHITECTURE AND URBAN DESIGN

6.12 Operational Efficiency

- Design with low operational costs and include strategies for further reduction during the building’s lifecycle
- Conduct a study on the efficiency of technology and spaces before use or application
- Avoid unnecessary use of new technology and equipment

6.13 Pleasant Aesthetic Attributes

- Align aesthetics with cultural sensitivity and should be agreeable to the general public; however, aesthetics should not take precedence over function

6.14 Code Compliance

- Strict compliance with the Building, the Fire Code, the Accessibility Law and other national and local laws, rules and regulations, conditions and restrictions relating to land development, building construction, including the national codes on environmental protection, structural, electrical, fire, mechanical, water supply, plumbing, and sanitation
7. TRANSPORTATION AND PARKING

7.1 Roads
7.2 Public Transit Systems

a. Public Utility Vehicles
   • Establish public utility services routes based on the campus’ ridership demands
   • Strategically locate public utility service terminals for orderly travel and for safety of commuters

b. Buses or Shuttles
   • Scheduled bus or shuttle services may be established for more comfortable and efficient travel
   • Can accommodate students or faculty and staff, depending on distance and demand

c. Monorail or Tram Systems
   • For campuses with a considerably large population or located in highly urbanized areas
   • Terminals should be strategically and adequately located throughout the campus to ensure orderly travel
     within and out of the campus
   • Tracks should not be obstructive to the regular vehicular flow within the roads of the campus
   • Pedestrian safety should not be obstructed by the systems
   • Should have no or minimal damage or impact to the flora and fauna of the University
THE SUSTAINABLE DESIGN PRINCIPLES

7. TRANSPORTATION AND PARKING

7.3 Private Vehicle Access
7.4 Loading and Unloading Requirements
7.5 Parking Provisions and Design

8. UTILITY SERVICES

8.1 Water Supply
8.2 Electric Supply
8.3 Sewage and Storm Water Drainage
8.4 Solid Waste
8.5 Telecommunications
THE UP DILIMAN EXAMPLE
SUSTAINABILITY IS ACHIEVED WHEN ---

NATURE

is

Respected,
Preserved,

and allowed to perform its Ecological Functions.
SUSTAINABILITY IS ACHIEVED WHEN ---

CULTURE

is

Respected,
Propagated,

and the UPD community be made to consciously and conscientiously perform our responsibility towards the keeping the Filipino culture protected and enriched in its local flavor.
SUSTAINABILITY IS ACHIEVED WHEN ---

**AESTHETICS**

becomes

A Way of Life,

manifested in clean, well-maintained buildings, and in legible and memorable landscapes.
Thank You and MABUHAY!!