Parking areas on Yield Streets and Shared Streets shall alternate sides every 75m (max.).

**LEGEND**
- Vegetation
- Formal Trees
- Protected Open Space
- Civic Park
- Wetlands
- Shoreline / Beach
- Market Garden Buildings
- Cemetery
- Civic Urban Centres
- Urban Areas
- Market Garden
- Existing Urban Edge
- Bus Depot
- Urban Edges
- Existing Urban Areas
- Coding for Rapid Urbanization in the Capital of a Developing Country
  
  Akanda SmartCode

**Article 3: Community Scale**

Urban blocks and associated residential streets need to be designed by developer team based on Smart Code Standards.

NB: Lines representing connector streets are illustrative only.

**Article 5: Building Scale**

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Notes:

- Neighborhood Street
- Shared Street

**Transect Zone: T4 General Urban**

General Form Intent:

- Space and creates a defined edge along the street.
- Shared streets or streets with curbs and sidewalks define small to medium sized walkable

- Side setbacks that combine horizontal and vertical mixed uses within this form.
- The lots are surrounded by a wall that clearly defines private

**Paved parking areas, shared streets, and pedestrian passages shall use porous pavement.**

**Secondary Thoroughfares Standards**

- 2-4m Walk
- 2-4m Park
- 2m Travel
- 4m Travel

**Zone Standards**

- 2m Apron
- 2m Apron
- 10m min. Curbless
- 10m min. 12.8 -17.5m

Street trees within public right-of-way shall be located per sections above and spaced at 14m (max.) on-center.

Refer to Sustainability Guidelines for design of storm-water treatment facilities.
Defining a Vision of Sustainable Growth for Akanda, Gabon

Through the development of a new Masterplan for Akanda, we have carefully considered President Ali Bongo Ondimba’s vision for Gabon—to diversify the economy beyond oil and mining and attract investment around responsible forestry, agriculture and tourism. The resulting plan recognizes the beauty of Akanda and neighboring Akanda—the presence of a complex system of creeks and rivers, the forests of the Emerald Arc and the spectacular coastline. If development can be carefully managed, Akanda could represent the best of ‘Gabon Emergent’.

- Master Plan Project Vision
Cross-Ventilation and Rain Protection

Applicable Transect Zones:
- T2
- T3E
- T3N
- T4
- T5
- T6

Guidelines:
- Prevent insects from entering the building.
- Screens should be provided on operable windows to prevent wind-borne rain.
- Entry ways in 45º rain.
- Porch or balcony to shield windows and other screening elements or recessed deep enough in a porch or balcony to shield windows and other screening elements or recessed deep enough in a porch or balcony to shield windows and other screening elements or recessed deep.
- Windows should be covered by roof eaves, awnings, or other screening elements to provide cross-ventilation at all times, even during wind-blow rain.
- Occupants should be able to open windows to prevent insects from entering the building.
- Screens should be provided on operable windows to prevent wind-borne rain.
- Porch or balcony to shield windows and other screening elements or recessed deep.
- Windows should be covered by roof eaves, awnings, or other screening elements.
- Cross-ventilation at all times, even during wind-blow rain.
- Occupants should be able to open windows to prevent insects from entering the building.

Guidelines:
- Source Control: Local Swales
- Code (FBC)

Next Steps:
- Demonstration Project
- Workforce Training
The code is meticulously calibrated to foster development appropriate for Gabon. The team studied existing vernacular community and building patterns in Gabon as well as local building techniques, then adapted the code standards accordingly.
Innovation #1: Simple, Single-Page Checklist Standards

Article 5: Building Scale

Building Type Standards

Standards (comply with all)

- Lot width
  - Rear adjacent to an alley: 12-30m
  - Rear adjacent to another lot: 15-30m
- Lot depth: 30m min.
- Building distance from side lot line: 3m min.
- Building distance from rear lot line
  - Rear adjacent to an alley: 0m min.
  - Rear adjacent to another lot: 3m min.
- Building height: 1-2 stories
- Floor-to-ceiling height: 3m min.
- Eave depth: 1.8m min.
- Drive width: 3m max.
- Front lot line defined by an allowed street facade type; side and rear lot lines defined by a building or wall.
- Parking (if provided) accessed from alley on lots adjacent to an alley.
- Garage setback behind Front Facade: 3m min.

Allowed Street Facade Types (select one)

- Building 3.7m from front lot line
- Face of lot wall aligned with front facade
- Porch 2m min. deep
- Face of porch and steps at or behind front lot line
- Pedestrian entry separate from vehicular entry
- Dooryard defined by a wall that is solid for no more than 1.2m and no taller than 1.8m
- Face of front wall within 3m of front lot line

T3N Building Type: Cottage Home

Lot Width
- 3m min.
- 12-30m

Lot Depth
- 30m min.
- 1 to 2 stories
- 12-30m

Rear Adjacent to an Alley
- 0m min.

Rear Adjacent to Another Lot
- 3m min.

Building Distance from Side Lot Line
- 3m min.

Building Distance from Rear Lot Line
- 0m min.
Innovation #2: Designed as a Paper-Based App

1. Identify Project Location
2. Identify Project Scale
3. User Receives Only the Pages that Apply to Them!
User 1: Building Developer/Local Homeowner Overview

1. Transect Zone: T4 General Urban
   - Zone Standards
   - Allowed Building Types (select one)
     - Flex Building (p. 5-31)
   - Lot width ..................... 15-18m
   - Lot depth .................... 30m min.
   - Building distance from side lot line .......................... 2m
   - Building height ................................... 3 m max.
   - Floor-to-ceiling height .................. 3m min.
   - Sideporch width .............. 4m min.
   - Sideporch depth .................. 3m min.
   - Eave depth .................... 1.8m min.
   - Parking (if provided) accessed from rear alley ...........
   - Front lot line defined by an allowed street facade type, side and rear lot line defined by a building or wall...

2. T4 Building Type: Sideyard Building
   - Building Type Standards
     - Standards (comply with all)
     - Lot width ..................... 15-18m
     - Lot depth .................... 30m min.
     - Building distance from side lot line .......................... 2m
     - Building height ................................... 3 m max.
     - Floor-to-ceiling height .................. 3m min.
     - Sideporch width .............. 4m min.
     - Sideporch depth .................. 3m min.
     - Eave depth .................... 1.8m min.
     - Parking (if provided) accessed from rear alley ...........
     - Front lot line defined by an allowed street facade type, side and rear lot line defined by a building or wall...

3. Additional Guidance: Illustrations (2 pages)

4. Tropical Design Guidelines
Transect Zone: T4 General Urban

Zone Standards

General Form Intent: The T4 General Zone consists of small to medium lot, attached and detached buildings, with little or no front or side setbacks that combine horizontal and vertical mixed uses within this form. The lots are surrounded by a wall that clearly defines private space and creates a defined edge along the street. Shared streets or streets with curbs and sidewalks define small to medium sized walkable blocks. Thoroughfare layout is typically regular, except when addressing topography or other local features.

Allowed Uses (comply with all)

- All Uses Allowed

Industrial uses require approval by the Administrator

Allowed Building Types (select one)

- Flex Building (p. 5-31)
  9-18m wide x 30m min. deep lot

- Sideyard Building (p. 5-33)
  12-18m wide x 30m min. deep lot

- Courtyard Building (p. 5-35)
  36-48m wide x 30m min. deep lot

Confirm Allowed Use
Article 5: Building Scale

T4 Building Type: Sideyard Building

Building Type Standards

Standards (comply with all)
- Lot width: 15-18m
- Lot depth: 30m min.
- Building distance from side lot line: 2m
- Building height: 1-3 stories
- Floor-to-ceiling height: 3m min.
- Sideyard width: 4m min.
- Sideporch depth: 3m min.
- Eave depth: 1.8m min.

Parking (if provided) accessed from rear alley.

Front lot line defined by an allowed street facade type; side and rear lot lines defined by a building or wall.

Allowed Street Facade Types (select one)

- Gallery
- Wall and Forecourt
- Dooryard

Illustrative Examples

- 2-Story Sideyard Building with the Flex Street Facade Type, a wall defining the perimeter, and an alley-loaded garage with a unit above.
- 2-Story Sideyard Building with the Wall and Forecourt Street Facade Type, a wall defining the perimeter, and an alley-loaded garage with a unit above.
- 2-Story Sideyard Building with the Gallery Street Facade Type, a wall defining the perimeter, and an alley-loaded garage with a unit above.
Building Application Process

1. Meet with Administrator
   » Analyze: Regulating plans to determine applicable standards
   » Receive:

   From Article 5: Block and Building Scale
   Application: Building Types
   Standards

   From Appendix
   Tropical Design Guidelines

2. Design
   » Submittal Requirements:
   - Building Site Plan
   - Building Front Elevation

   » Must show:
   - Building footprint
   - Roof
   - Lot lines
   - Site walls, entries, and gates
   - Dimensions to demonstrate compliance with standards:
     - Setbacks
     - Building width
     - Building depth
     - Roof overhang depth
     - Drives and parking areas

3. Submit Design
   » Submittal Requirements:
   - Front of the building
   - Door and window locations and sizes
   - Building finishes
   - Dimensions to demonstrate compliance with standards:
     - Floor height
     - Building height
     - Roof overhang depth

4. Review by Staff
   » If not approved
   - Receive comments
   - Revise design
   - Re-submit design

5. Receive Approval (if approved)

6. Satisfy Submittal Requirements
**Block Design Principles**

- **Orient buildings towards civic space.**
  - Buildings adjacent to or across from civic space should face the civic space. Orient the front of a building towards the civic space, rather than its back or side.
  - Why this is important: This defines the public space and increases a sense of security within the public space.

  **Do this:**
  - Buildings with fronts oriented toward public space reinforce the shape of the space. Windows oriented onto the space provide a sense of security that nearby residents may be watching.

  **Not this:**
  - Buildings with sides oriented toward public space create a weak edge. Fewer windows facing the space make it feel less secure.

- **Orient buildings towards thoroughfares.**
  - The fronts of all buildings should orient towards a thoroughfare or civic space. Sides fronting on thoroughfares should be minimized and backs of buildings should never be oriented to the thoroughfare.
  - Why this is important: This defines and activates the interface between the private and public realm and increases the sense of security for pedestrians walking along the sidewalk.

  **Do this:**
  - The fronts of all buildings are oriented towards a thoroughfare. Entries along the street promote walking and windows provide a sense of security that nearby residents may be watching.

  **Not this:**
  - Buildings with sides and backs orienting towards the thoroughfares create a weak interface with the public realm and make the pedestrian experience less secure and less enjoyable.
Article 3: Community Scale

Community Type: C2 Quartier

Transect Zone Allocation Standards

- Transect Zone Areas as % of Developable Area
  - T1 Natural: 0%
  - T2 Rural: 0%
  - T3 Edge: 15-25%
  - T3 Neighborhood: 40-50%
  - T4 General Urban: 20-40%
  - T5 Urban Center: 5-15%
  - T6 Urban Core: 0%

- Transect Zone Location
  - Transect zones are located per the Illustrative Transect Zones Regulating Plan (approx.)
  - More urban transect zones are located near the community center
  - Adjacent transect zones are only one transect zone higher or lower
  - Transitions between T5, T4, and T3N transect zones occur at mid-block or across an alley
  - Transitions between T3N and T3E occur across a thoroughfare

Simple Checklists for:
1. Transect Zone Allocation
2. Thoroughfare Allocation
3. Civic Space Allocation

Illustrative Example: Civic Spaces and Civic Uses Regulating Plan

Illustrative Example: Transect Zone Regulating Plan

Illustrative Example: Thoroughfare Regulating Plan

Only 4 Pages Per Community Type
Civic Spaces Standards

**Plaza**

Composition (comply with all)
- Civic space size: 0.2-2.0ha
- Edges defined by a thoroughfare: 3 min.
- Surface materials: Primarily hardscaped
- Shaded area: 50% min.
- 6m (min.) paved area along one edge to accommodate informal commercial space
- Regular tree spacing at perimeter
- Formal composition

Allowed Activities (select one or more)
- Community building
- Marketplace

**Square**

Composition (comply with all)
- Civic space size
- Edges defined by a thoroughfare
- Surface materials: Primarily hardscaped
- Shaded area: 50% min.
- 6m (min.) paved area along one edge to accommodate informal commercial space
- Regular tree spacing at perimeter
- Formal composition

Allowed Activities (select one or more)
- Community building
- Marketplace

Secondary Thoroughfares Standards

**Neighborhood Street**

- 2-4m Walk
- 4m Travel
- 12-17.5m Curblines

**Edge Street**

- 2-4m Walk
- 4m Travel
- 12m min. Curblines

**Yield Street**

- 2-4m Walk
- 4m Travel
- 10-14m Curblines

**Shared Street**

- 2-4m Walk
- 4m Travel
- 10-12m Curblines

**Pedestrian Passage**

- 10m min. Curblines

**Rear Alley**

- 2m Apron
- 4m Travel
- 8m Curblines

Notes:
- Parking areas on Yield Streets and Shared Streets shall alternate sides every 75m (max.).
- Paved parking areas, shared streets, and pedestrian passages shall use porous pavement.
- Parking areas on Yield Streets and Shared Streets shall alternate sides every 75m (max.).
- Paved parking areas, shared streets, and pedestrian passages shall use porous pavement.
- Parking areas on Yield Streets and Shared Streets shall alternate sides every 75m (max.).
- Paved parking areas, shared streets, and pedestrian passages shall use porous pavement.

Refer to Sustainability Guidelines for design of storm-water treatment facilities.
Street trees within public right-of-way shall be located per sections above and spaced at 14m (max.) on-center.
Community Design Principles: Civic Spaces

- Distribute civic spaces throughout the community.
- Use irregular intersections to create informal civic space.

Do this:
- Civic spaces should be distributed throughout the community rather than providing one single large civic space.
- Irregular intersections should provide opportunities to create informal civic space.

Not this:
- A single large civic space is less accessible to residents living further away.
- The purely rectilinear thoroughfare grid provides fewer opportunities for informal civic space and creates a more monotonous development that can be difficult for wayfinding.

Why this is important:
- This makes the civic spaces more accessible to the surrounding residents.
- This helps distribute the civic spaces throughout the community while also providing landmarks that help with wayfinding.

Irregular intersections should provide opportunities to create informal civic space.

Why this is important:
- This helps distribute the civic spaces throughout the community while also providing landmarks that help with wayfinding.

Do this:
- Distributing civic spaces throughout the community ensures that all residents have access to a civic space within walking distance of their home.
- An irregular intersection provides an opportunity to create an informal civic space.

Not this:
- A single large civic space is less accessible to residents living further away.
- The purely rectilinear thoroughfare grid provides fewer opportunities for informal civic space and creates a more monotonous development that can be difficult for wayfinding.

Why this is important:
- This makes the civic spaces more accessible to the surrounding residents.
- This helps distribute the civic spaces throughout the community while also providing landmarks that help with wayfinding.

Community Design Principles: Community Center

- Integrate important civic uses at the center of the community.
- Locate the most intense uses near the center of the community.

Do this:
- Important civic uses that are intended to serve all residents of the community (such as community buildings, post offices, and libraries) should be located at the center of the community.
- The most intense uses (higher transect zones) should be located near the center of the community.

Not this:
- A civic building located at the edge of the community puts it further away from many of the residents and will likely increase traffic due to residents having to drive to the building.
- Locating the most intense uses at the edge of the community places them further away from many residents, promotes driving, and increases the impact of development on the natural surroundings.

Why this is important:
- This will promote walkability and activate the center of the community.
- The daily users of these facilities will help activate the surrounding area.

Integrate important civic uses at the center of the community.

Why this is important:
- This will promote walkability and activate the center of the community.
- The daily users of these facilities will help activate the surrounding area.

Locate the most intense uses near the center of the community.

Why this is important:
- To promote walkability and to lessen the impact of intense development on the natural surroundings that form the edge of the community.
- Locating the most intense uses (higher transect zones) near the center of the community places them in close proximity to the greatest number of residents and further from the natural surroundings.

Applicable to All Community Types
Checklist-Based Administration

Administrator Checklist: Building Pre-Application Meeting

1. Determine the building's transect zone and allowable building type(s)
   - Refer to: Regulating Plan Atlas
   - Provide to applicant:
     - From the approved block regulating plans for the block that includes the applicant's lot
   - Designated transect zone
   - Allowable building types

2. Assemble the applicable transect zone standards
   - Refer to: Article 5: Block and Building Scale
   - Provide to applicant:
     - Transect Zone Standards (not including Building Type Standards) for the applicant's transect zone as determined in Step 1.
     - T3 Edge: p. 3-27–3-30
     - T3 Neighborhood: p. 3-21–3-22
     - T7 General Urban: p. 3-29–3-30
     - T7 Urban Center: p. 3-37–3-38
     - T10 Urban Core: p. 3-43–3-44
   - Discuss with applicant:
     - Building application process and submittal requirements
     - Transect Zone Standards to introduce the design concepts and intent
     - Applicant's submitted design must meet all standards provided for the design to be approved

3. Assemble the applicable building type standards
   - Refer to: Article 5: Block and Building Scale
   - Provide to applicant:
     - Building Type Standards for building types listed on the applicant’s lot as determined in Step 1:
     - Locate the appropriate Building Type Standards by finding the designated transect zone in Article 5, then finding the designated building type(s) within that transect zone
     - If applicant is ready to select a building type, it is only appropriate to submit Building Type Standards for that selected type

4. Assemble the applicable supplemental guidelines
   - Refer to: Appendix
   - Provide to applicant:
     - Tropical Design Guidelines (p. TG-1–TG-28)
   - Discuss with applicant:
     - Building Type Standards to introduce the design concepts and intent
     - The various building type options, if there is more than one allowable building type on the lot
     - Applicant's submitted design must meet all standards provided for the design to be approved

5. Retain a copy of all documents provided to the applicant (for use in the review of the applicant’s submittal)
Community Types

Transect Zone 1 (T3) + Transect Zone 2 (T4) + Transect Zone 3 (T5) = A Community Type

Community Type Notes:
» Community types are a mix of transect zones.
» Each community type has a different mix of transect zones.
» Faubourg = least intensely developed.
» Centre = most intensely developed.

Transect Zones

Building Type 1 + Building Type 2 + Building Type 3 = A Transect Zone

Transect Zone Notes:
» Transect zones are a mix of different Building Types.
» Each transect zone has different intensity of development (heights, setbacks, etc.).
» Transect zones are represented in T1 through T6.
» T1 represents a natural condition and each number higher (T2, T3, T4, T5, and T6) represents a higher intensity of development going up to T6.
» Each Transect Zones has 3 Allowed Building Types and 3 Allowed Street Facade Types.
» Transect Zones are the building blocks of Community Types.
Additional Features

Building Type Framework Enables Dynamic, Place-Specific Designs

“Building types are a framework to encourage dynamic, place-specific design. For the Akanda SmartCode, including this framework allowed us to create a palette of housing options that the code enabled, providing guidance to local developers on housing that would build on local tradition, adapt to local economic conditions, and support the character of Gabon.”
Unlike in the U.S., illustrative examples and educational diagrams are allowed in Gabon and provide an educational opportunity.
**Article 3: Community Scale**

**Community Design Principles: Community Center**

**Integrate important civic uses at the center of the community.**

- Important civic uses that are intended to serve all residents of the community (such as community buildings, post offices, and libraries) should be located at the center of the community.
- Why this is important: This will promote walkability and activate the center of the community.

**Do this:**

- A civic building located at the center of the community places it in close proximity to the greatest number of residents. The daily users of these facilities will help activate the surrounding area.

**Not this:**

- A civic building located at the edge of the community puts it further away from many of the residents and will likely increase traffic due to residents having to drive to the building.

**Locate the most intense uses near the center of the community.**

- The most intense uses (higher transect zones) should be located near the center of the community.
- Why this is important: To promote walkability and to lessen the impact of intense development on the natural surroundings that form the edge of the community.

**Do this:**

- Locating the most intense uses (higher transect zones) near the center of the community places them in close proximity to the greatest number of residents and further from the natural surroundings.

**Not this:**

- Locating the most intense uses at the edge of the community puts them further away from many residents, promotes driving, and increases the impact of development on the natural surroundings.
Complementing the Code with the Cutting Edge in Sustainability

Source Control: Bio-Retention Areas

Applicable Transect Zones: T1 T2 T3E T3N T4 T5 T6

Description: Bio-retention areas are an important component of Source Control, specifically designed to manage stormwater runoff and improve water quality. These areas typically consist of vegetated areas and permeable surfaces that allow water to infiltrate the ground, reducing the volume of runoff and improving water quality.

Design Criteria:
- Soil suitability and infiltration capacity are critical factors in the design of bio-retention areas. Local soils may require amendments to enhance infiltration.
- Vegetation selection should include species that are well-suited to the site conditions and can tolerate stormwater conditions.
- The bio-retention area should be designed to accommodate the expected volume of runoff and the potential for clogging during construction.
- Perforated underdrain system, slotted pipe complying with BS 4660 (or similar alternative), or Perforated underdrain system, slotted pipe complying with BS 5481 (or suitable alternative) with openings orientated downwards.
- Bio-retention areas should be located on the most impermeable parts of the site, with a minimum depth of 300mm sand layer to relevant International standards.
- Mulch not to be piled up, 75mm max. mulch.
- Trapped Hot Air
- Cross Ventilation

Applicable Transect Zones:
- T1 Natural Zone: low density, low intensity, single family detached
- T2 Rural Zone: low density, low intensity, single family detached
- T3 Edge Zone: medium density, single family detached, attached and semi-detached
- T3 Neighborhood Zone: medium to high density, single family detached, attached and semi-detached
- T4 General Urban Zone: high density, single family detached, attached and semi-detached
- T5 Urban Center Zone: medium to high density, single family detached, attached and semi-detached
- T6 Urban Core Zone: high density, single family detached, attached and semi-detached

Solution
- Provide roof vents that allow the hot air to escape. The plume must be properly directed to avoid overheating the courtyard from the street or rear of the lot.
- In courtyard buildings, provide open passages into the courtyard from the street or rear of the lot that can be used to provide ventilation on a minimum of two sides.
- Avoid double-paned glass in windows and doors as this can reduce the air flow.
- Cross Ventilation
- Cross Ventilation
- Cross Ventilation

Principle:
- Cross Ventilation
- Cross Ventilation
- Cross Ventilation