A SUSTAINABLE HABITAT FOR SURINAME

CLIMATE RESPONSIVE DESIGN FOR THE HUMID TROPICAL COUNTRY OF SURINAME

3MOSO

P4 PRESENTATION | DION R. A. LACHMAN | 1511653 | OCTOBER 4TH, 2016
CONTENTS

Introduction
Urban Design
Building Design
Building Technology
Climate Design
Paramaribo

163.821 km²

Dutch

573.311 (2014)

2,9 km²

1,13%
WARM HUMID (TROPICAL) CLIMATE
TEMPERATURE BETWEEN 22 °C - 32 °C
## Precipitation Average 2200mm Per Year

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### Netherlands Precipitation Average 800mm Per Year
WIND MAIN DIRECTION NORTH-EAST & SOUTH-EAST
THE SUN DIRECTION

Sun path
- Today
- June solstice
- December solstice
- Annual variation
- Equinox (March and September)

Sunrise/sunset
- Sunrise
- Sunset

Time
- 00:02
- 03:05
- 06:08
- 09:11
- 12:14
- 15:17
- 18:20
- 21:23
HUMIDITY LEVEL BETWEEN 70 TO 95%
Binnenlandse netto migratie naar district, 2009-2013

[Bar chart showing migration trends by district from 2009 to 2013.]

- Panamá: [Data representation]
- Wanica: [Data representation]
- Nichovic: [Data representation]
- Coromie: [Data representation]
- Saramassa: [Data representation]
- Para: [Data representation]
- Corowijne: [Data representation]
- Marowijne: [Data representation]
- Brokopondo: [Data representation]
- Sipaliwini: [Data representation]
DECENTRALISATIE
LELYDORP THE CAPITAL OF THE DISTRICT OF WANICA
(THE 2ND LARGEST POPULATED CITY IN SURINAME)
THE LOCATION IN LEYDORP
CONCEPT

SOCIAL COHESION
IMPROVED BY OPEN FRONT YARDS WITH A VERANDA & DIFFERENT MEETING POINTS

SAFETY
IMPROVED BY INNER STREETS FOR SLOW TRAFFIC AND BY ORIENTATION OF THE BUILDINGS

HELOPHYTE FILTER
FILTERING WASTEWATER BY REED IN THE POND THAT IS LOCATED IN THE WEST OF THE PROJECT

SPORT FACILITIES
Volleyball, football, basketball & jogging in the park to stimulate exercise

SOLAR ENERGY
SOLARLEY’S SITUATED IN THE PARK FOR GENERATING SUSTAINABLE ELECTRICITY

URBAN FARMING
CULTIVATE FRESH FOOD IN THE NEIGHBORHOOD & THE PARK

RECREATION
REFRESH HEALTH OR SPIRIT BY RELAXING IN THE GREEN ENVIRONMENT OF LELYVILLE
AIRFLOW IN SETTLEMENTS

Settlement placed across prevailing wind

Airflow patterns in settlements
STREET NETWORK

Green street space

“Canopy effect” by trees

LANDSCAPING WITH VEGETATION

Ground covered with vegetation
STRAAT PROFIEL
VEILIGHEID
PERCEEL INDELING
CONCEPT

Bandgrid: - Constructie
- Bad/Toilet
- Keuken
- Water en afvoer voorzieningen

De mens – statisch – dynamisch

90 x 90 cm
BUILDING ORIENTATION

Sun orientation

Wind orientation

Compromise
BUILDING SHAPE

Traditional passive home in warm humid climate

Traditional passive home in warm humid climate
OPBOUW WONING
WALLS
WONING VARIANT 1
WONING VARIANT 1
WONING VARIANT 2
WONING VARIANT 1
WONING VARIANT 3
WONING VARIANT 3
WONING VARIANT 3
V1 SECTION 1:5

- Houten profiel
- Aluzinc afdekplaat
- Spiraal spijker (H.D.G.)
- Dubbelzijdig bitumen strips
- Aluzinc dakplaat (bovenkant gecoat)
- Gordingen
- Reflective aluminium folie
- Afwerklaag 12,5mm
- Compressed earth blocks 125x250mm
- Stalen Schroef (verzinkt)
- Dubbelzijdig bitumen strips
- Betonijzer 12mm
- Stalen L-Profiel (verstevigd)
- Stalen bevestiging L-Profiel
- Multiplex 18mm
- Aluzinc dakgoot

- Aluminium profiel
- Schuifrolsysteem
- Schuifbare houten louvres systeem
V2 SECTION 1:5

- Schuifbare houten louvres systeem
- Aluminium gliding profiel
- PVC afvoer t.b.v. railing

Maaiveld -120

- Raaplaag 10mm
- Innertol (2 laags)
- 6" Beton blok 150mm

- Beton afwerkvloer 30mm
- Ter plaatse gestort beton met wapening 200mm
- Bouwfolie
- Opvulzand

- Werkvloer beton 50mm
V3 SECTION 1:5

- Houten spant
- Stalen bout (verzinkt)
- Houten ligger 150 x 150mm

- Ophangsysteem
- Aluminium hoofdprofiel
- Houten plafond element
- Roteer scharnier
- Afdekplaat
- Stalen bout (verzinkt)
- Kunststofplug

- PVC afvoer t.b.v. veranda
- Raaplaag 10mm
- Innertol (2 laags)
- 6" Beton blokken 150mm
COMPRESSED EARTH BLOCKS
CROSS-VENTILATION
SOLAR CONTROL IN ROOF

RADIANT BARRIERS ARE SHINY FOILS WITH EMITTANCE OF .05 OR LESS WITH AT LEAST 1" CLEARANCE, ATTIC MUST BE VENTED

ATTACHED TO UNDERSIDE OF ROOF DECK

ATTACHED TO BOTTOM OF RAFTERS

STAPLED BETWEEN TRUSSES (OFTEN MULTIPLE SHEETS)

DRAPE OVER TOP OF TRUSSES OR RAFTERS
SHADING DEVICES

Shading by pierces canopies (or shade screens).

Shading by vertical screens.

Shading by utilizing balconies.

Shading with operable external blinds.
“IF GOD IS IN THE DETAIL, CLIMATE DESIGN IS IN THE BUILDING SECTION”
Thank you | Dankuwel | Gran tangi