



ATOM
d e s i g n



Phaithaya Banchakitikun

27 years experience in Design Industry
Architecture, Interior, Product

2011-Present : ATOM design - Founder

2000-2018 : Architects 49 – Partner

1998-2000 : Vision Design Studio, Sydney Australia

1997-1998 : Taliesin, Arizona/Wisconsin USA

1997 : Graduated, Chulalongkorn University

ASA : Vice President 2022-2024

(Association of Siamese Architect)

Thai BIM association: Founding committee





Social and political concerns



Geopolitical tensions and the war in Ukraine



Housing availability and affordability



Political instability and extremism



Environmental issues and climate change



Social and income inequalities



Demographic trends and migration policy

Real estate and development concerns



Construction costs



Labour/resource availability



Regulations



Land availability/cost



Cap rate movements



Environmental requirements

Sectors to watch



Data centres



Life sciences



Healthcare facilities



Student Housing



Senior Housing



Affordable housing



Self-storage



Flexible Offices



Logistics/
industrial/
warehouse



Urban retail



Urbanization

Value

Safety

Health and Wellness

All Generations (Aging)

Pet friendly

Nature and green

Carbon neutrality

Sustainability

City life

Long term

Resilience

Healthier lifestyle

Family + Friend relation

Childless, loneliness

Life refreshment

Our duty

Our responsibility

Ai, 5G, digital transformation will influence all



Urbanization

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Safety

Health and Wellness

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1. Liveability

Digital public services

City services online, with enhanced cybersecurity

Real-time data for transparent decision-making

2. Sustainability

Urban sustainability

Green mobility & public transport

Open green spaces & vertical farms

Net zero carbon ecosystem: sustainable built environment, renewable energy source integration, circular business models, etc.

3. Liveability

Work, live, play models

Local communities embracing mixed-use real estate and agile infrastructure

Burgeoning local economy with key services nearby

Increased outdoor focus with space for leisure activities near office and residential areas

4. Affordability

Inclusive city

Increased affordable housing

Equitable access to key services: healthcare, digital, etc.

5. Resilience

Resilient infrastructure & operations

Climate-smart infrastructure: resilient to extreme weather changes

Real-time data tracking & surveillance of city operations

1 NO
POVERTY



2 ZERO
HUNGER



3 GOOD HEALTH
AND WELL-BEING



4 QUALITY
EDUCATION



5 GENDER
EQUALITY



6 CLEAN WATER
AND SANITATION



7 AFFORDABLE AND
CLEAN ENERGY



8 DECENT WORK AND
ECONOMIC GROWTH



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



10 REDUCED
INEQUALITIES



11 SUSTAINABLE CITIES
AND COMMUNITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



14 LIFE
BELOW WATER



15 LIFE
ON LAND



16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



17 PARTNERSHIPS
FOR THE GOALS



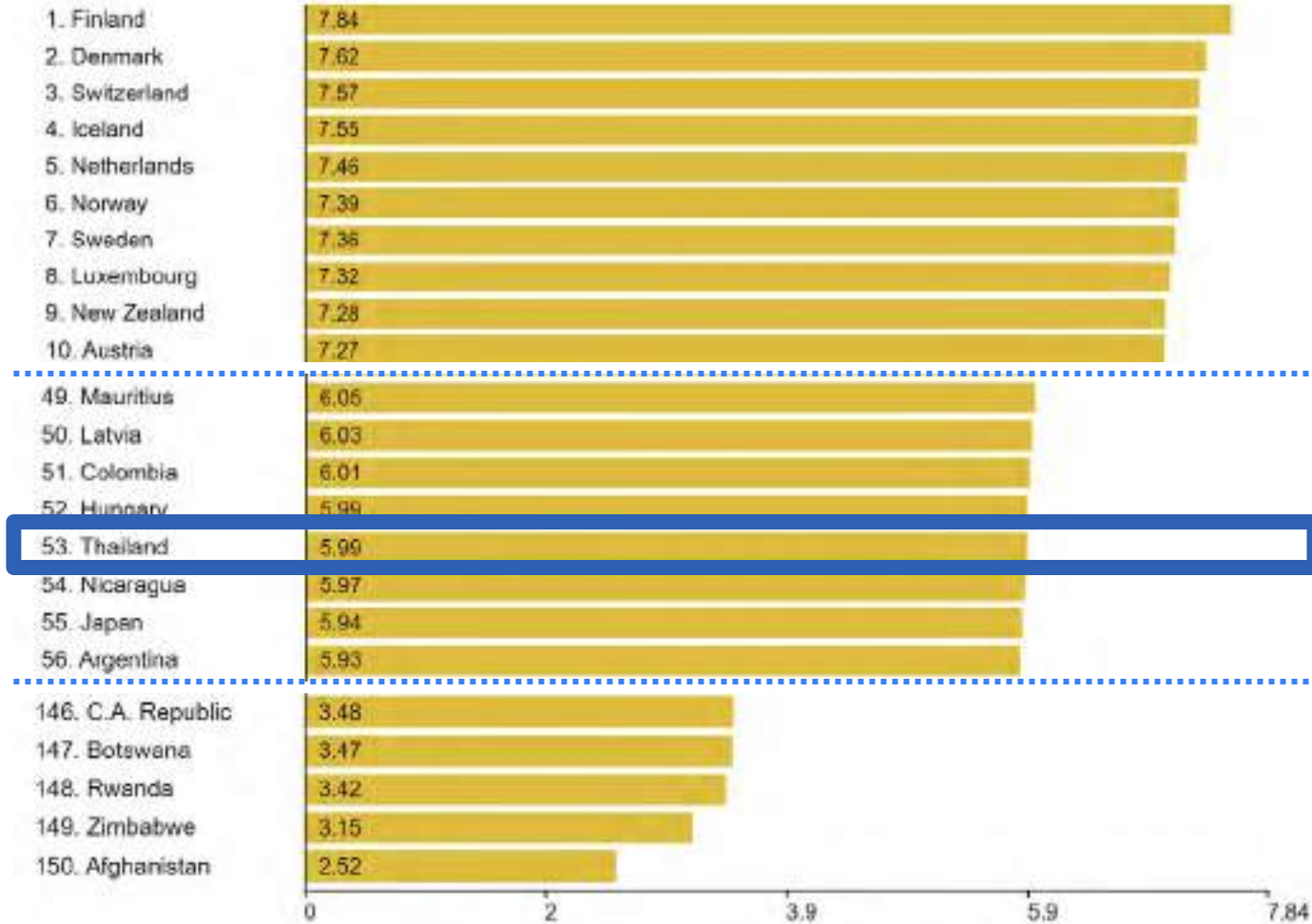
**SUSTAINABLE
DEVELOPMENT
GOALS**



GROSS NATIONAL HAPPINESS

Firstly initiated by BHUTAN
and recognized by
UN and All Countries

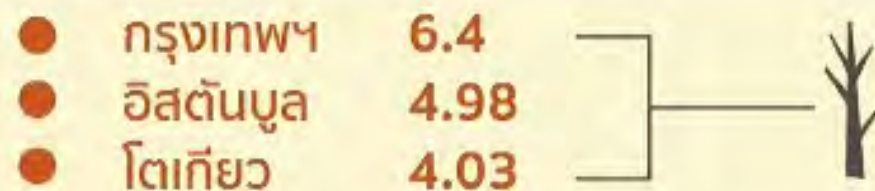
GROSS NATIONAL HAPPINESS RANKING



สัดส่วนพื้นที่สีเขียวในเมืองใหญ่



เกณฑ์มาตรฐานคุณภาพคนเมือง ปี 2561 ขององค์การอนามัยโลก (WHO)
ควรมีพื้นที่สีเขียวเฉลี่ย 9 ตร.ม./คน

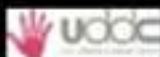


4.5 กิโลเมตร

ขอบเขตบริการของสวนสาธารณะ



Copyright: UddC Urban Insight



BENEFITS OF URBAN GREEN SPACE



Reduces obesity levels by increasing physical activity including walking and cycling



Manages stormwater, keeps pollutants out of waterways, and reduces urban flooding



Increases neighbourhood property values



Reduces stress by helping interrupt thought patterns that lead to anxiety and depression



Filters up to a third of fine particle pollutants within 300 yards of a tree



Cools city streets by 2-4° F, reducing deaths from heat and cutting energy use



Reduces rates of cardiac disease, strokes, and asthma due to improved air quality



Protects biodiversity including habitat for migrating birds and pollinators

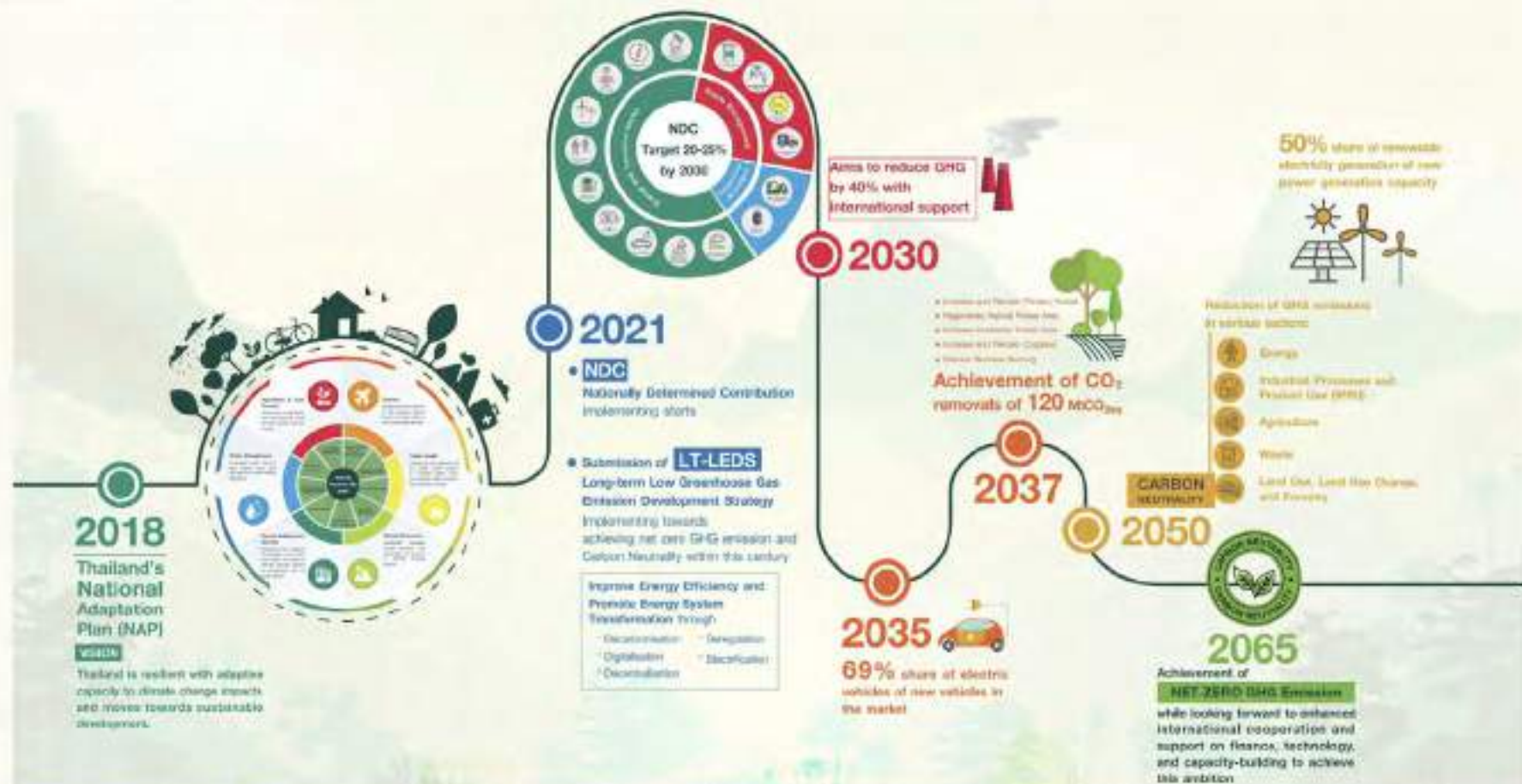


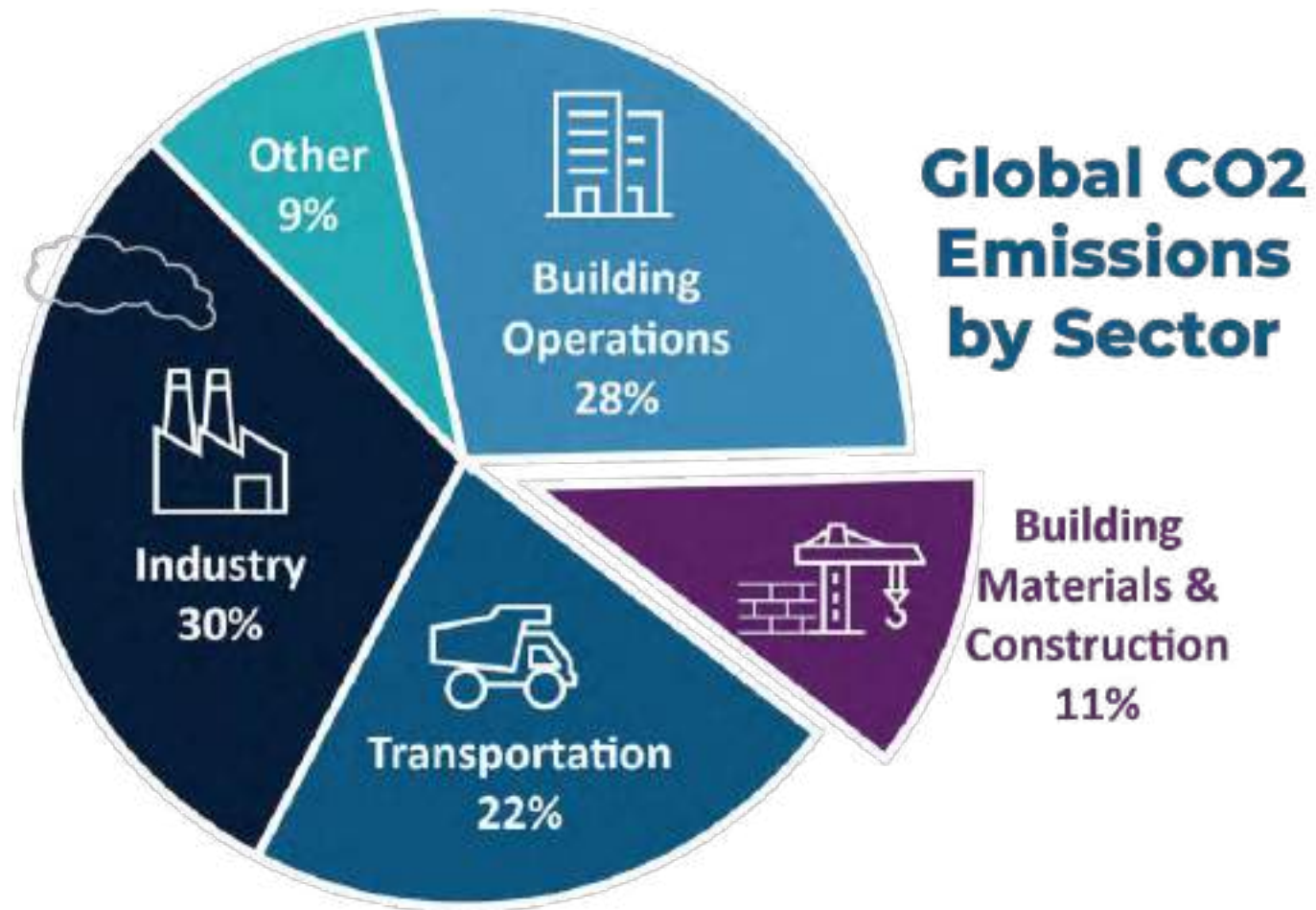
Paris Agreement

To achieve a **balance** between anthropogenic emissions by sources and removals by sinks of greenhouse gases **in the second half of this century**

81 ประเทศทั่วโลกประกาศ
เป้าหมาย Net-zero emissions
และอีกกว่า 60 ประเทศอยู่ระหว่าง
พิจารณาเป้าหมายดังกล่าว



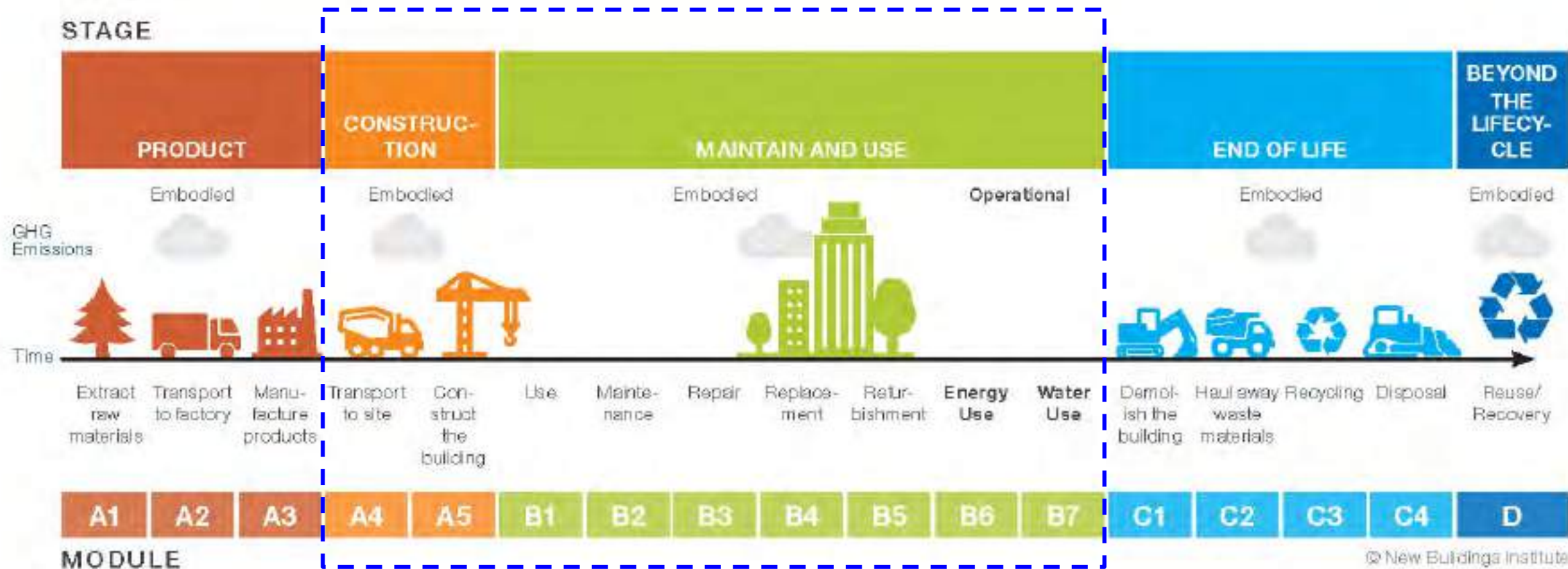




Source: Adapted from the World Green Building Council, Global Status report, 2019.

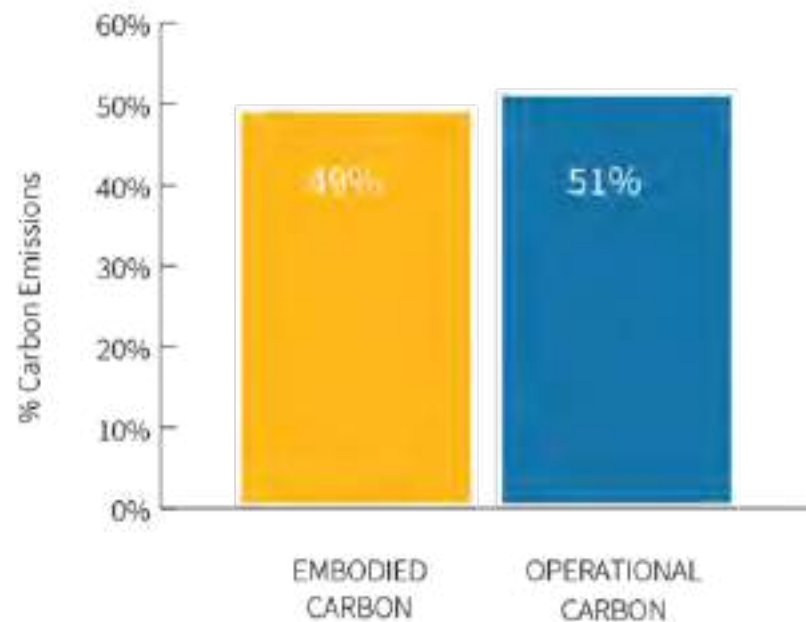
FIGURE 1: LIFECYCLE STAGES

Data source: BS EN 15978:2011

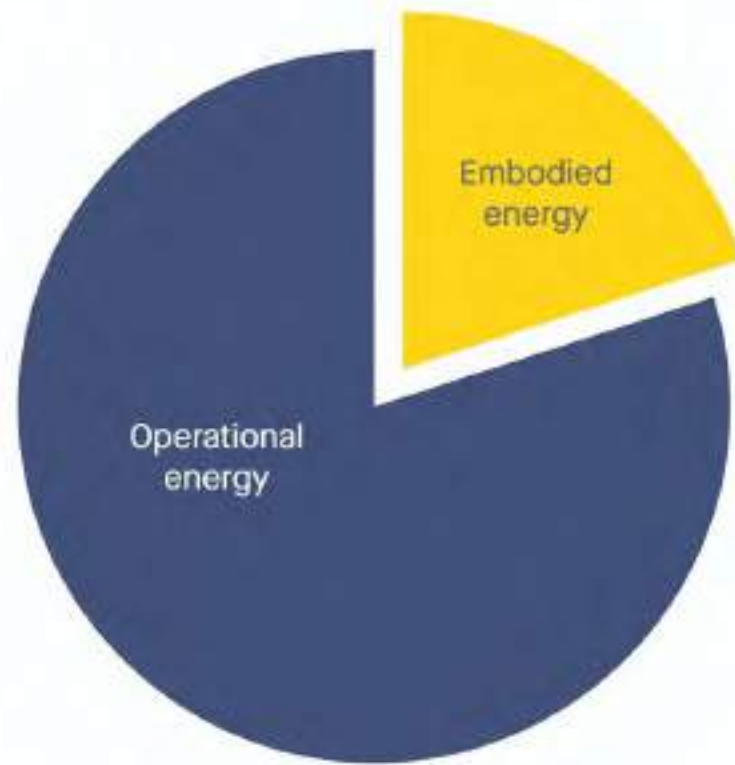


Total Carbon Emissions of Global New Construction from 2020-2050

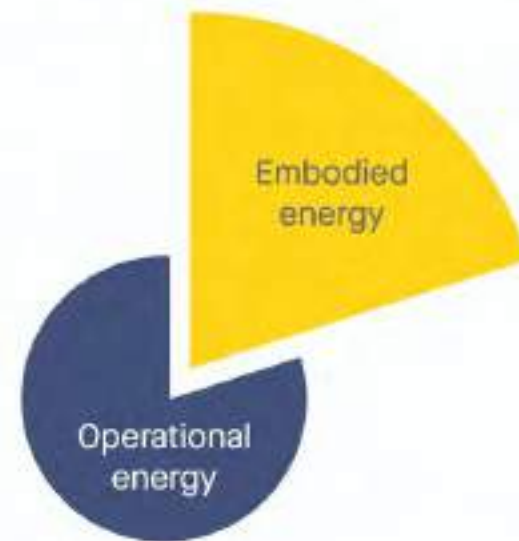
Business as Usual Projection



NET ZERO = ZERO CARBON?
Buildings: Total Lifetime Energy Use



Typical building



High-performance building



PASSIVE DESIGN

Tropical Climate design
Less carbon footprint material
Less Concrete



SOLAR ROOF

Decreasing power consumption
Decreasing Operational Carbon



MAXIMUM GREEN

Producing Carbon Positive
Carbon Credit

Passive Design

Tropical Climate design
Less carbon footprint material

Roof Edge :
Metal sheet screened with
wood pattern, folded into steps

Exterior Ceiling :
Metal sheet screened with
wood pattern

Crystal Clear Glass

Exterior Wall :
Painted with low VOC paint

Feature Wall : Porcelain Tile

Swimming Pool : Porcelain Tile

Terrace : Teak Wood





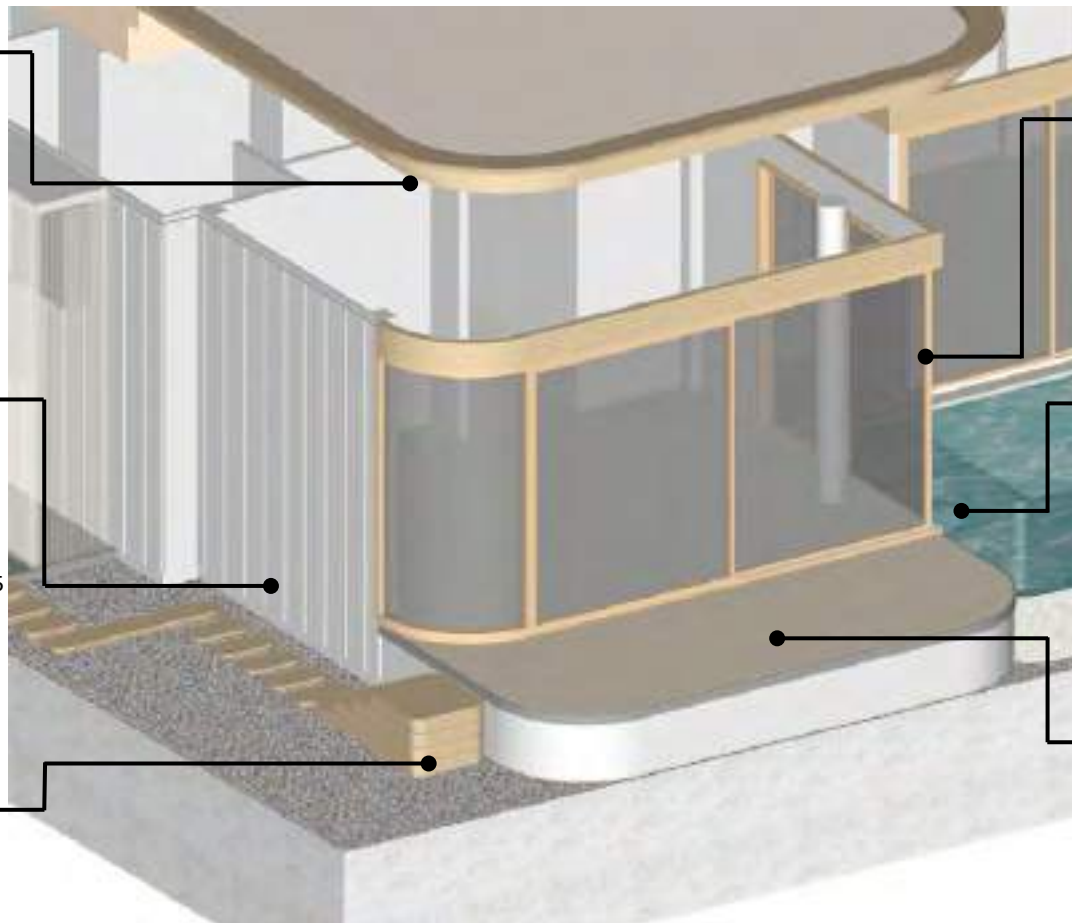
Metal Sheet + Wood Print



precast conc Super rete cornice
Top Coat Shield Sheen Code : 8465



White Sandwash Code : D-296



Aluminum Powder coated



Porcelain Code : Super Genti Snow
Anti Slip Surface



Teak Wood



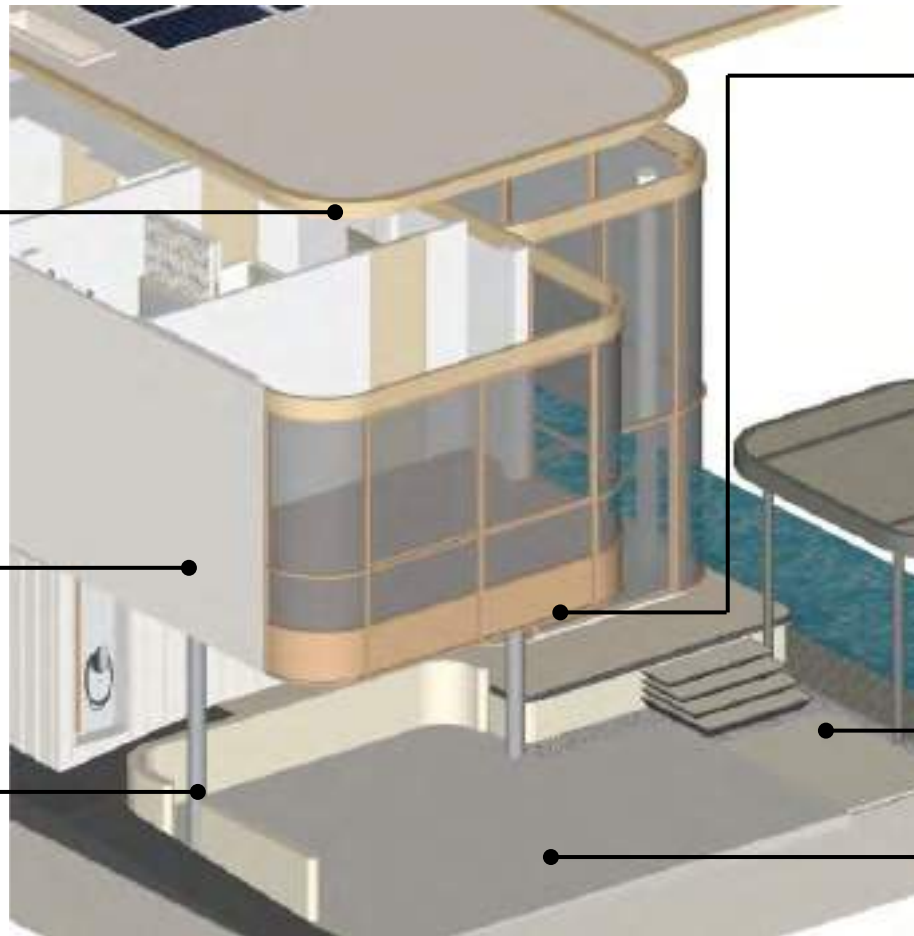
Metal Sheet + Wood Print



precast concrete cornice
Top Coat Super Shield Sheen Code :
8465



Shell Terrazzo



Aluminum Powder coated



Porcelain Code : Super Genti Snow
Anti Slip Surface



Stamped Concrete

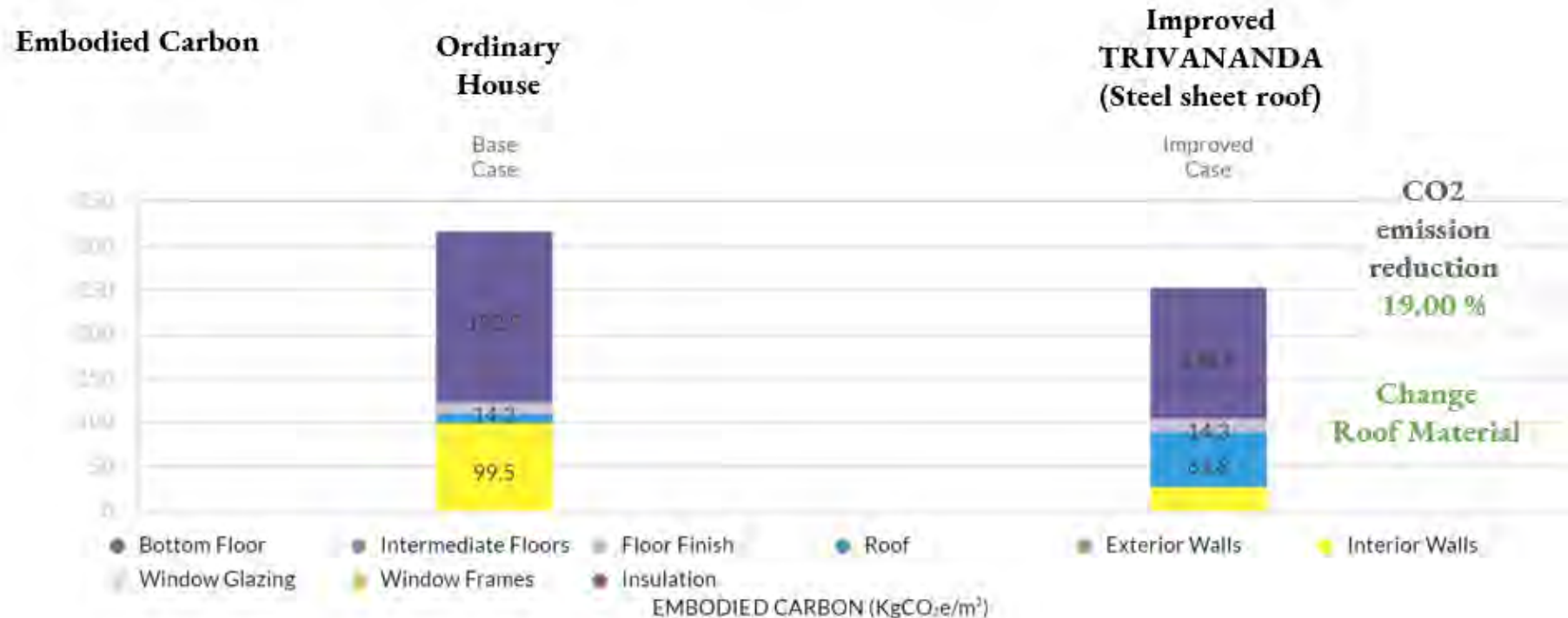
TRIVANANDA NANDA3 (Area 450 sq.m.)

Final Embodied Carbon

260 kg CO₂e/m²

Final Operational CO₂ Emissions

0.46 ton CO₂/month



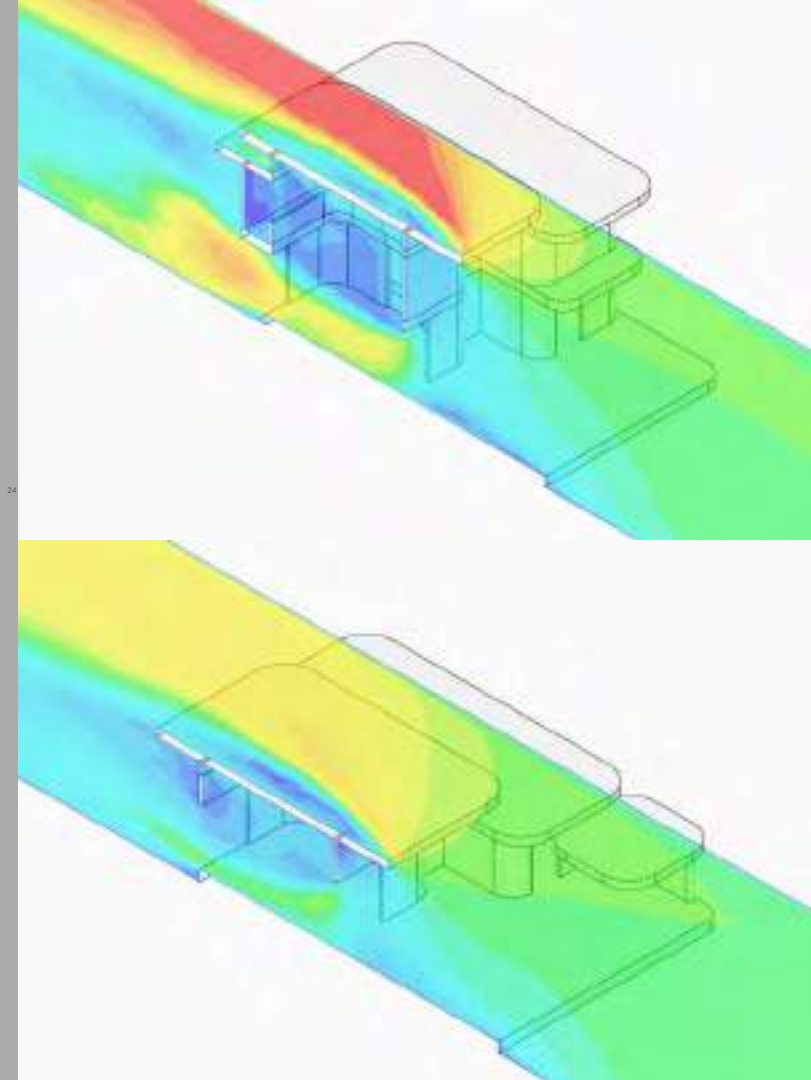
Sustainable, Energy Conservation and Innovation

Sustainability and Energy conservation strategy starts from the planning configuration. First, the villa must be excellent cross ventilated throughout. In order to achieve good natural ventilation, strategies such as using an atrium or double spaces that can open flow across north and south wind breeze is needed. The diagrams show computer analysis proves our hypothesis was right.

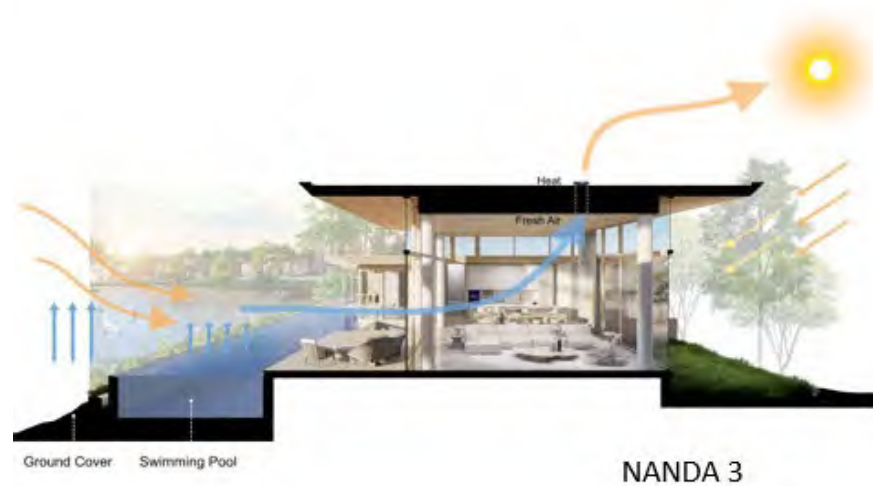
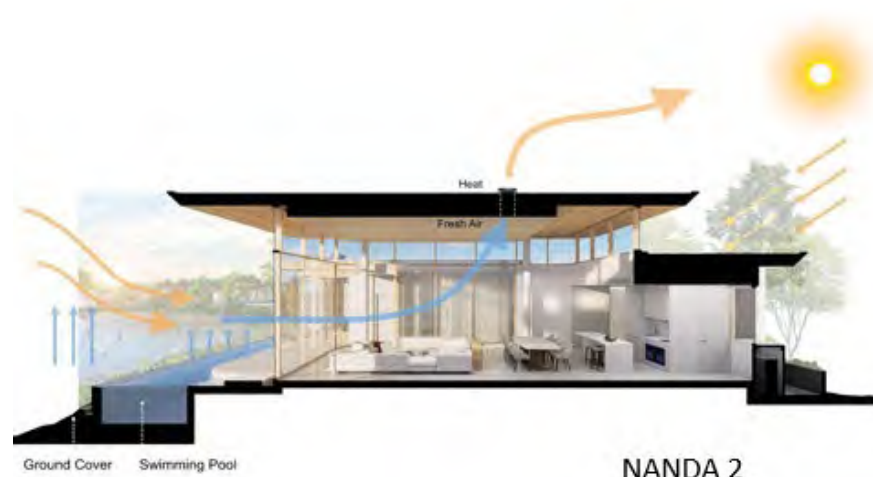
Secondly, with a high ceiling, an appropriate amount of natural lights should be allowed in the house as too much light will bring extra heat. This means the higher ceiling, the longer overhang is needed for the roof. Again, the diagrams show computer analysis proves our hypothesis was right.

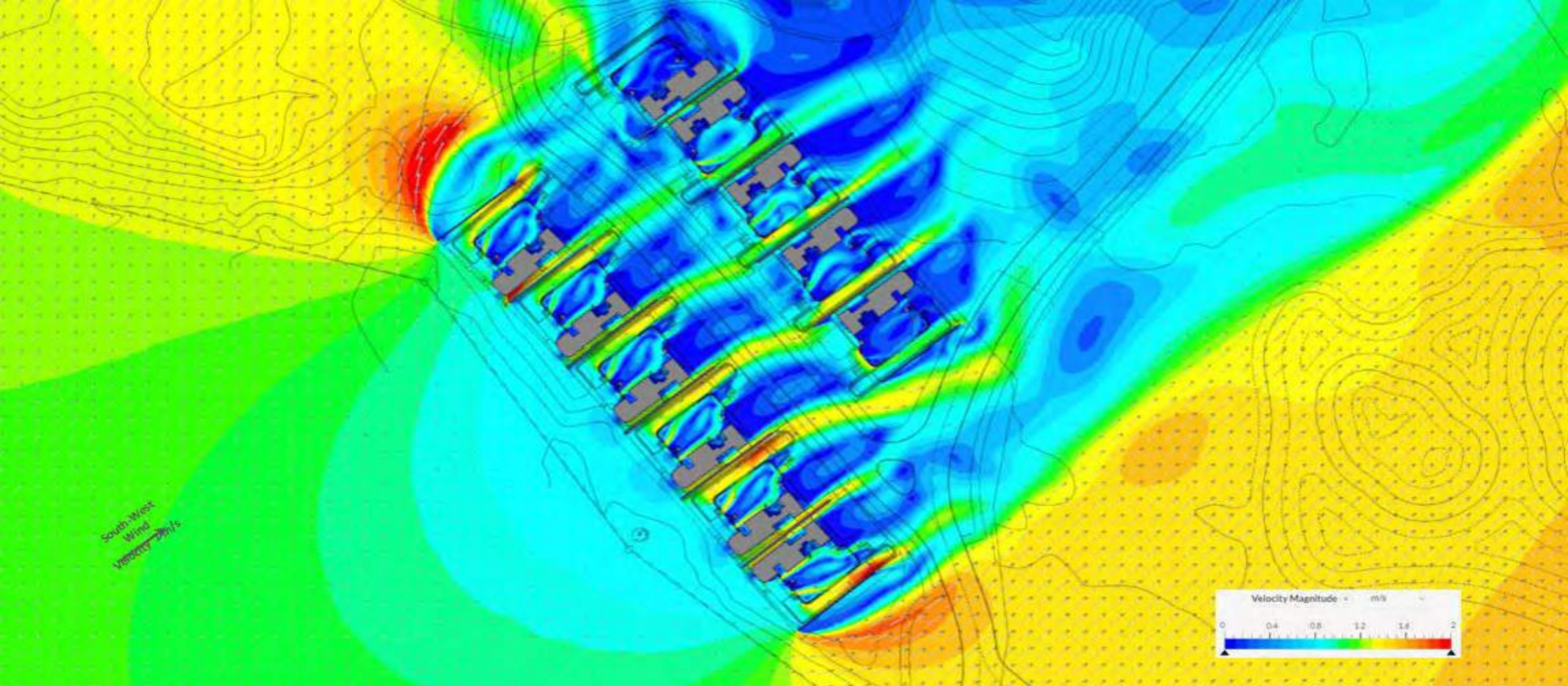
Within the project fringe, the first in Thailand Green Michelin starred restaurant “Jampa” is located. It shows dedication of the development as a whole towards sustainability development. Green star Michelin means zero waste. As so the Architecture, we introduce a choice of materials along with this concept such as; recycle porcelain, clams terrazzo, Non VOC wall paint, and recycle fabric. In which, every material as well as construction process will be carbon credit counted for project’s reference.

Lastly, renewable energy is still a basic back-bone. Every villa is fully equipped with technology such; Solar rooftop, EV Charger, and ERV system.

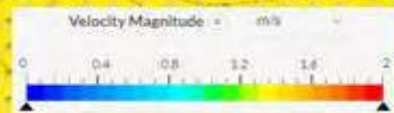


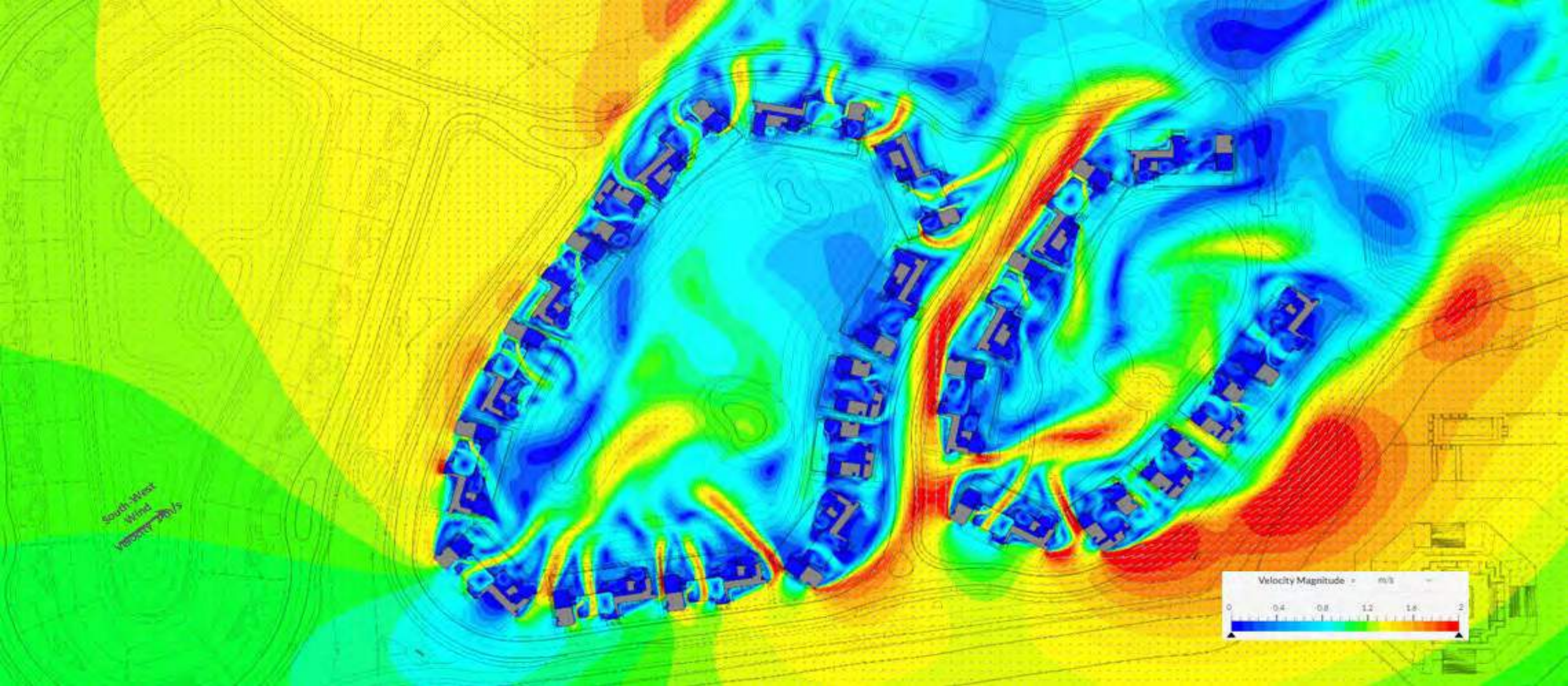


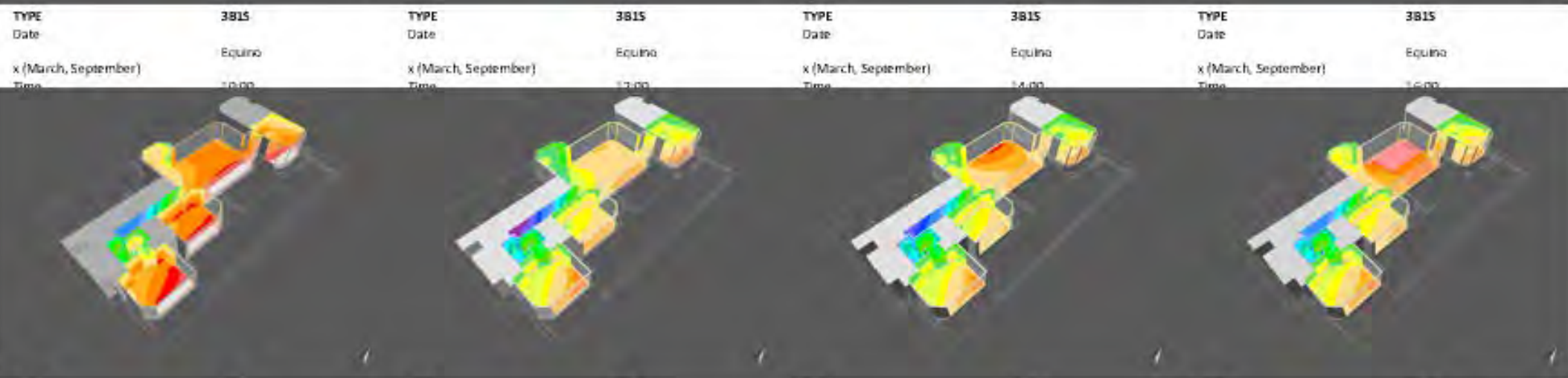
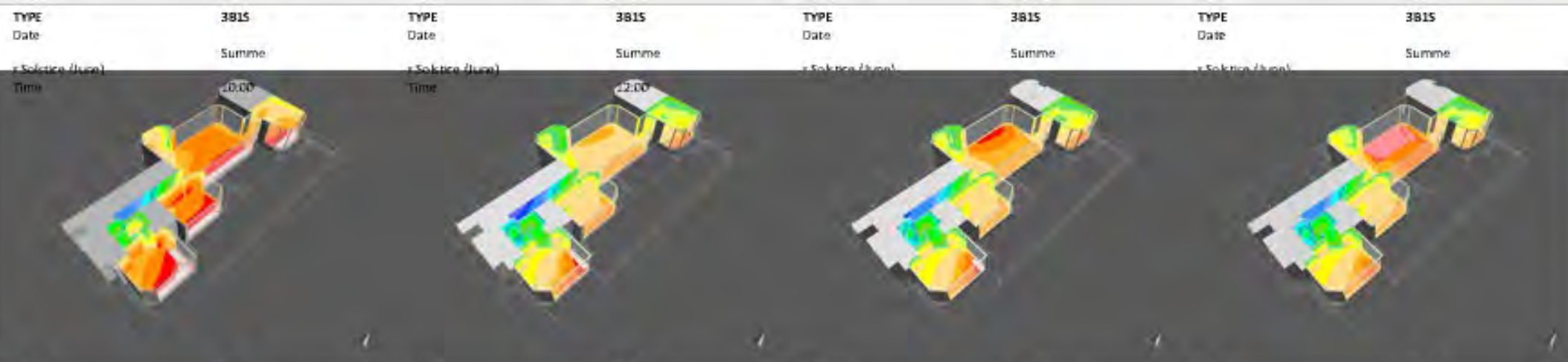


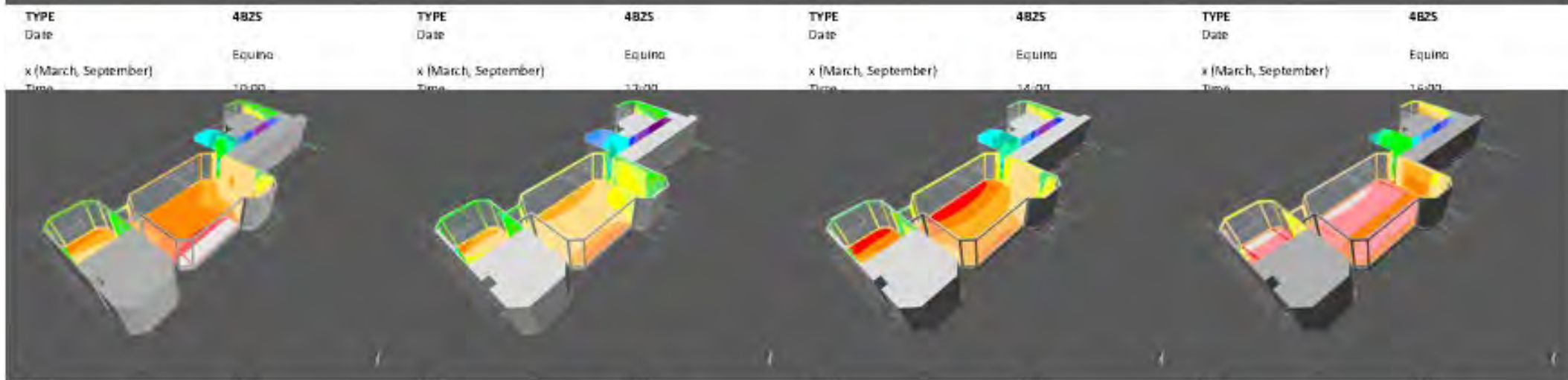
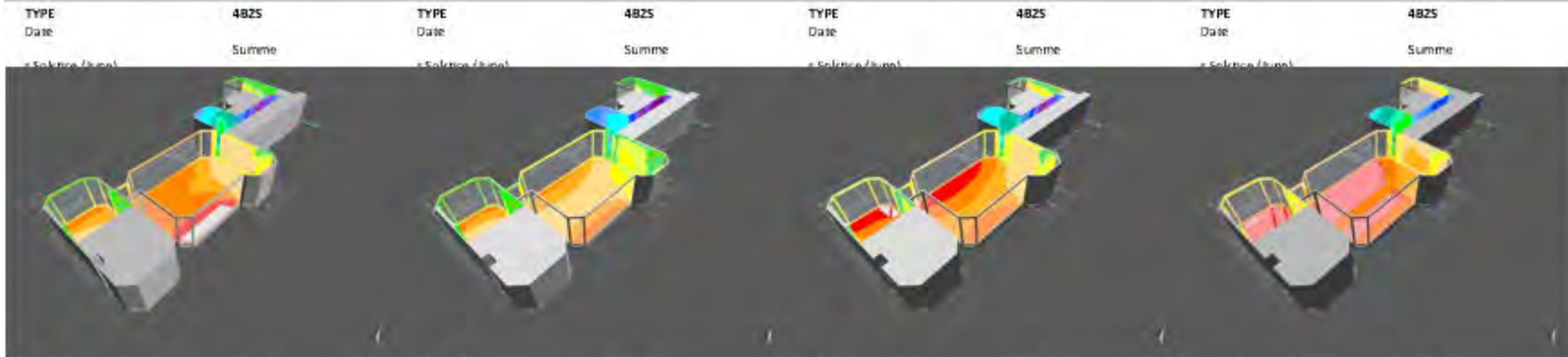


South-West
Wind
Velocity 20m/s









Concrete



Optimize
concrete mix

14%–33% reduction

None to low cost premium

Rebar



Use high recycled
content rebar

4%–10% reduction

None to low cost premium

Insulation



Select low- or
no-embodied-carbon
insulation products

16% reduction

No cost premium

Glazing



Select low- or
embodied-carbon
glazing products

3% reduction

10% cost premium

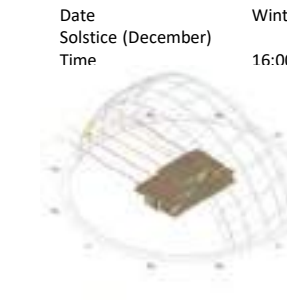
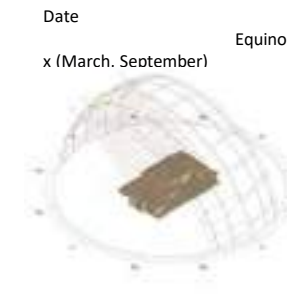
Finish Materials

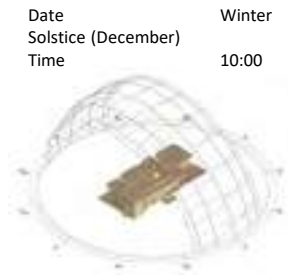
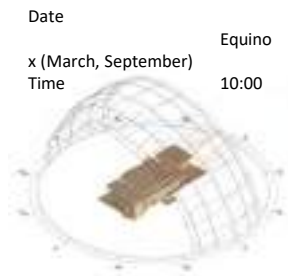


Select low- or
no-embodied-carb
on finish materials

5% reduction

None to low cost premium



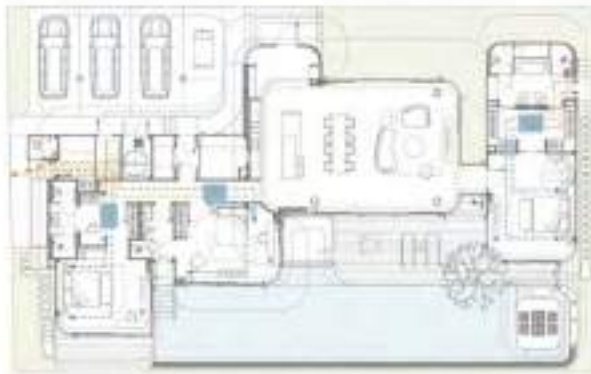
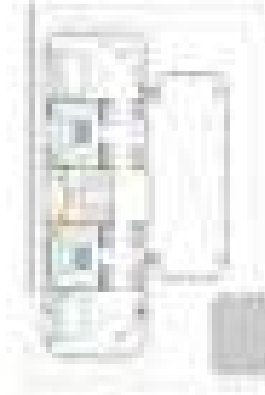




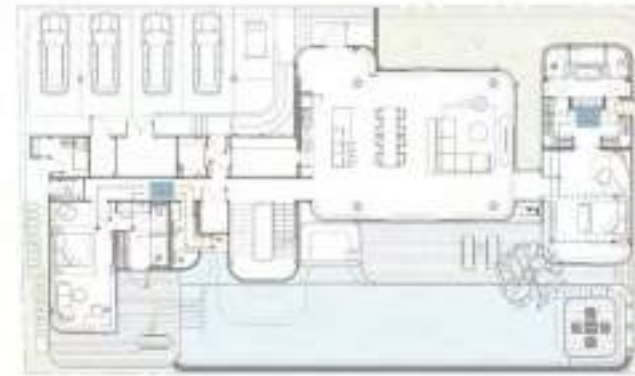
NANDA 2



NANDA 3+



NANDA 3



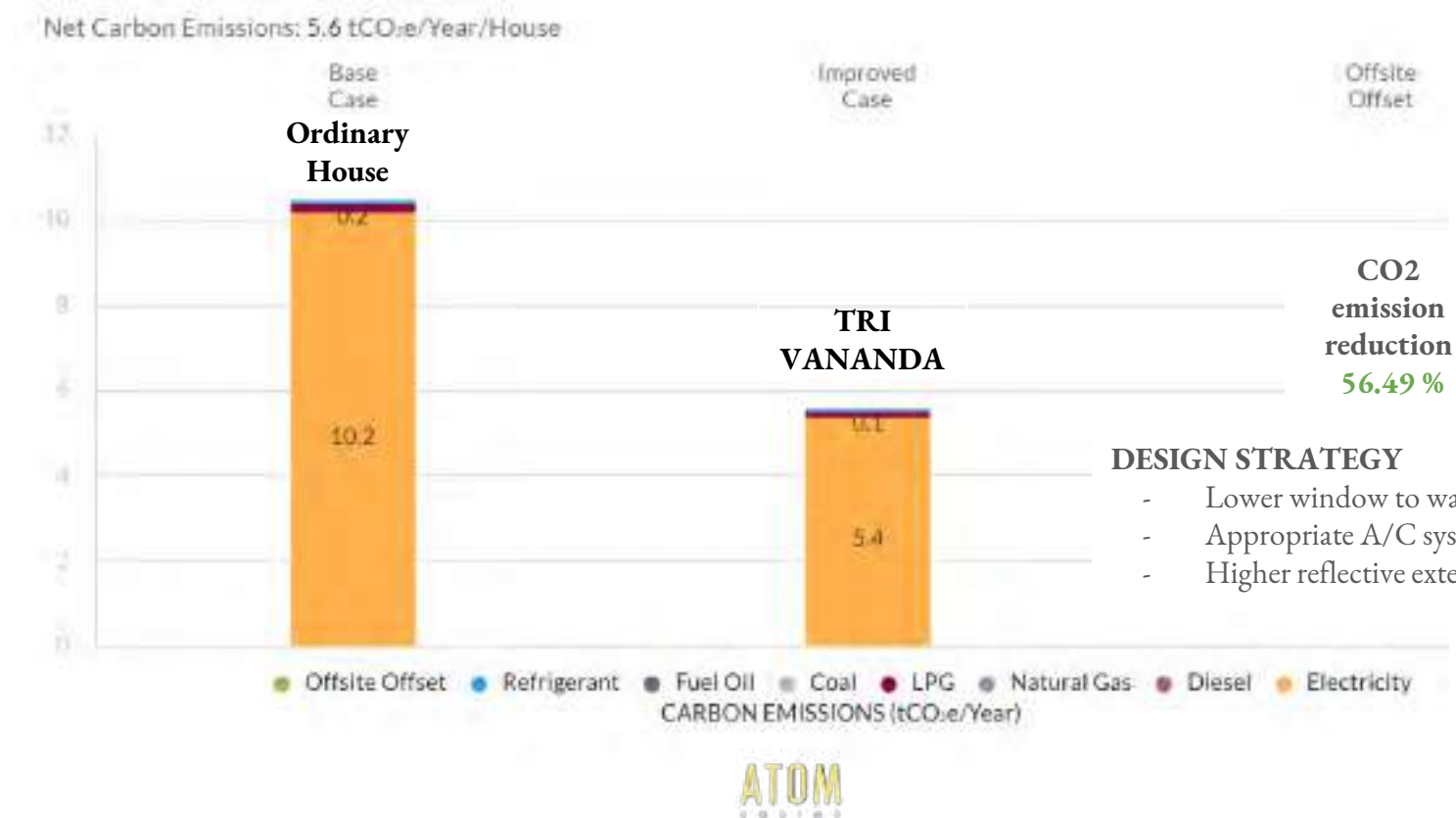
NANDA 4+



Active Air Quality
Energy Recovery Ventilator Diagram

TRIVANANDA NANDA3 (Area 450 sq.m.)

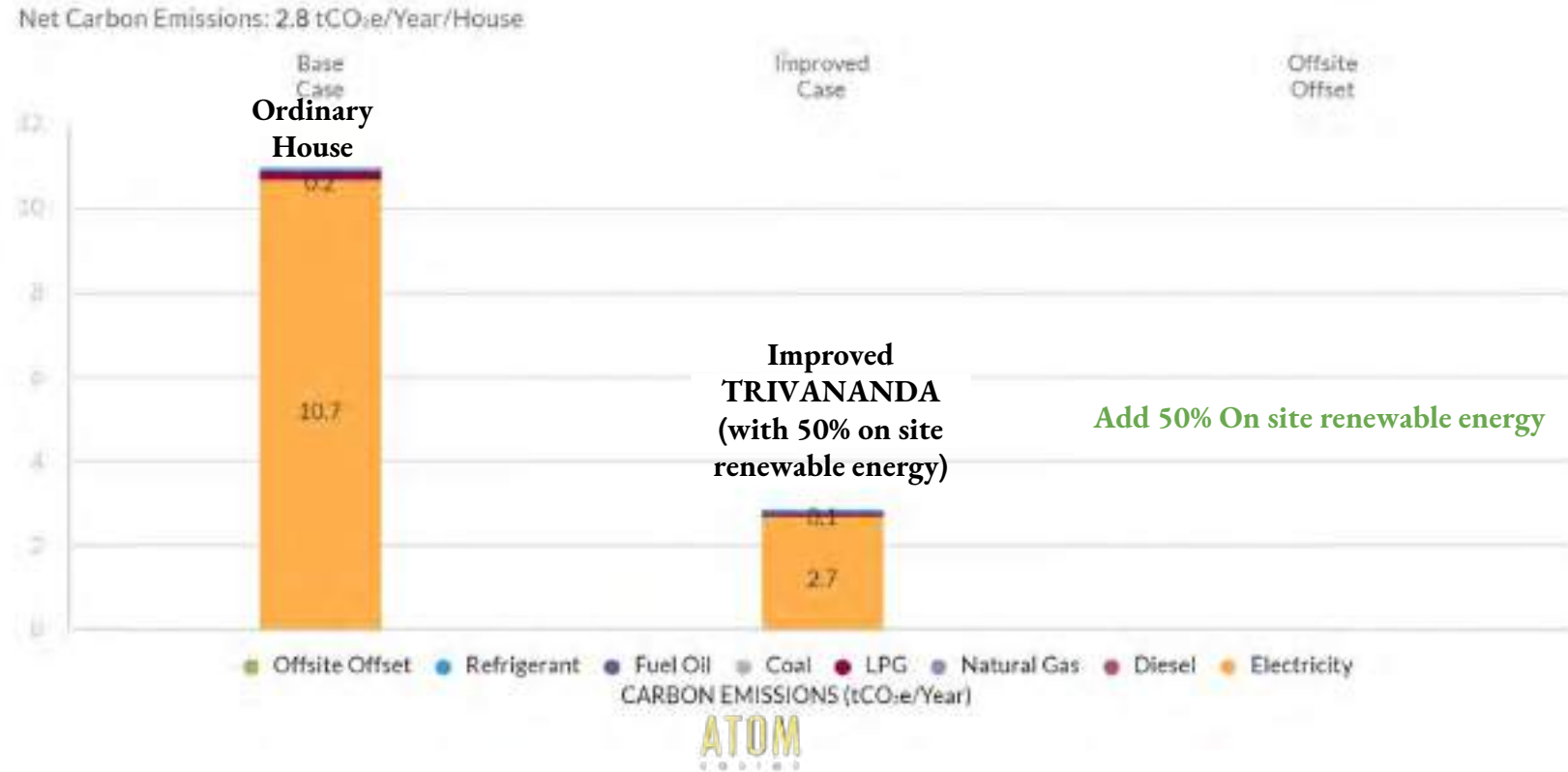
Operational CO2 Emissions - ELECTRICITY



TRIVANANDA NANDA3 (Area 450 sq.m.)

Final Embodied Carbon 472 kg CO₂e/m²

Final Operational CO₂ Emissions 0.23 ton CO₂/month





ON GRID

ระบบโซลาร์ที่ได้รับความนิยมมากที่สุด ราคาถูก แต่
ต้องมีการขออนุญาตการติดตั้งจากทางราชการ
เนื่องจากการเชื่อมกับ Grid ของการไฟฟ้า ใช้ได้
เฉพาะตอนมีแสงแดดเท่านั้น ไม่สามารถเก็บสำรอง
ไฟฟ้าไว้ใช้ในยามกลางคืนได้



HYBRID

Net Zero Concept

ระบบโซลาร์ที่สามารถใช้ไฟฟ้าจากการไฟฟ้า และ
สามารถบรรจุกินลงในแบตเตอรี่ได้ด้วย ทำให้
สามารถใช้งานได้ทั้งกลางวัน และ กลางคืน แต่ราคา
ของ Inverter มีราคาที่สูง ประกอบกับแบตเตอรี่ที่มี
ราคาแพงทำให้ระยะเวลาการคืนทุนยาวนาน

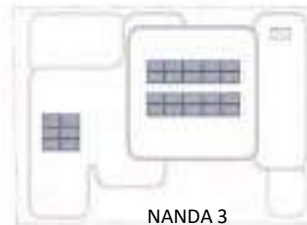




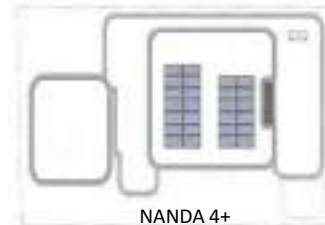
NANDA 2



NANDA 3+

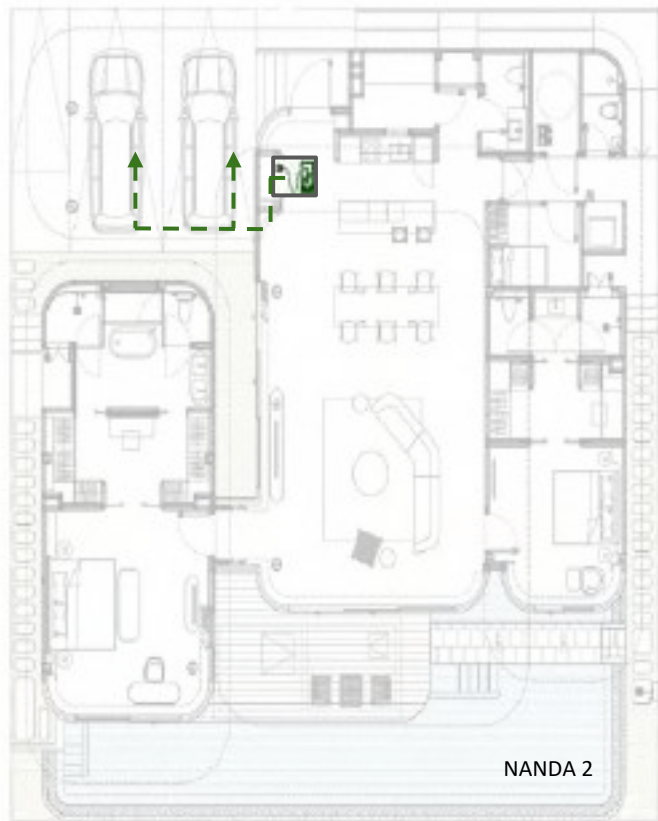


NANDA 3

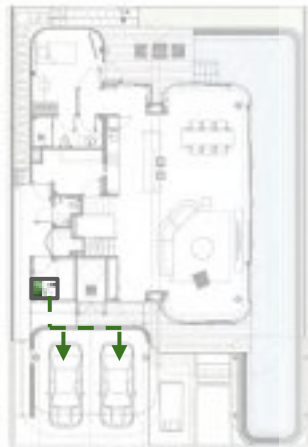


NANDA 4+

Living + Dining + Kitchen A/C size (BTU)	70,000	70,000	80,000	90,000
On Grid Solar Roof Budget (MB)	0.40	0.40	0.40	0.44
Payback (Yrs)	6 - 7	6 - 7	6 - 7	5 - 6
Electrical bill saving per month (5 THB / Unit - kWh) (THB)	5,940	5,940	5,940	7,020
Installment / month (e.g. 3% interest rate for 5 yrs) (THB)	7,187	7,187	7,187	7,907
Installment / month (e.g. 3% interest rate for 6 yrs) (THB)	6,078	6,078	6,078	6,686
Installment / month (e.g. 3% interest rate for 7 yrs) (THB)	5,286	5,286	5,286	5,814



EV WALL CHARGER
(Get ready for clean energy)



NANDA 3+



NANDA 3



NANDA 4+

58 รายชื่อต้นไม้ ปลูกแล้วได้ คาร์บอนเครดิต



- | | | |
|----------------------------------|---|---------------------|
| 1. ตะเคียนทอง | 21. พะยูง | 41. สุพรรณิการ์ |
| 2. ตะเคียนหิน | 22. ยางอินเดีย | 42. เตยหอมปรีดียาธร |
| 3. ตะเคียนชันตาแมว | 23. กระบาก | 43. มะหาด |
| 4. ไม้สกุลยาง
(ไม่รวมยางพารา) | 24. กระพี้เภาแดง | 44. มะขามป้อม |
| 5. สะเดา | 25. สารภี | 45. หว้า |
| 6. สะเดาเทียม | 26. แดง | 46. จามจุรี |
| 7. ตะกู | 27. ประดู่ป่า | 47. พลับพลา |
| 8. ยมหิน | 28. ประดู่ขาว | 48. กันเกรา |
| 9. ยมหอม | 29. มะค่าโมง | 49. กะทิงใบใหญ่ |
| 10. นางพญาเสือโคร่ง | 30. มะค่าแต้ | 50. หลุมพอ |
| 11. เนกขัม | 31. เคี่ยม | 51. กฤษณา |
| 12. สัตตบรรณตีนเป็ดทะเล | 32. เคี่ยมกระโดน | 52. ไม้หอม |
| 13. พญาสัต | 33. เต็ง | 53. เทพทรา |
| 14. ยาง | 34. ยาง | 54. พ้าง |
| 15. ตะแบกนา | 35. พะยอม | 55. ไม้พุ่มชนิด |
| 16. เสลา | 36. ไม้สกุลจันทน์
(จำตอ, ไม้จันทน์ - จำตอ) | 56. ไม้สกุลมะม่วง |
| 17. อินทนิลน้ำ | 37. จำปาศักดิ์ไทย
(จำตอ, จำปาศักดิ์, จำปาศักดิ์) | 57. ไม้สกุลกระโดน |
| 18. ตะแบกเลือด | 38. แคนนา | 58. มะขาม |
| 19. นากนุด | 39. กัลปพฤกษ์ | |
| 20. ไม้สัก | 40. รามพฤกษ์ | |

CO₂

CO₂

1 Rais = 2.5 Ton CO₂/ Year



Urbanization

Value

Safety

Health and Wellness

All Generations (Aging)

Pet friendly

Nature and green

Carbon neutrality

Sustainability

City life

Long term

Resilience

Healthier lifestyle

Family + Friend relation

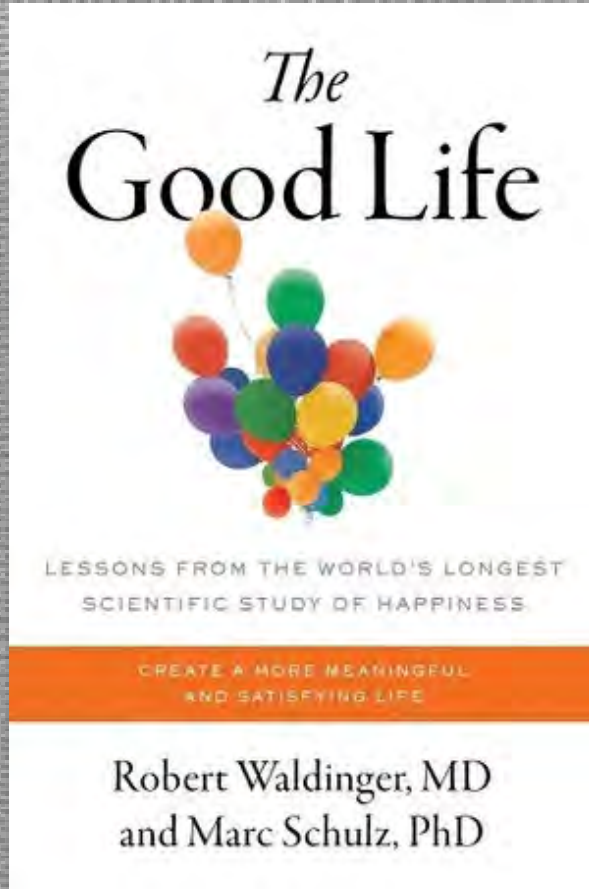
Childless, loneliness

Life refreshment

Our duty

Our responsibility

Ai, 5G, digital transformation will influence all



Since 1938, the Harvard Study of Adult Development has been investigating what makes people flourish. After starting with **724 participants**—boys from disadvantaged and troubled families in Boston, and Harvard undergraduates—the study incorporated the spouses of the original men and, more recently, more than **1,300 descendants of the initial group**. Researchers periodically interview participants, ask them to fill out questionnaires, and collect information about their physical health. As the study's director (Bob) and associate director (Marc), we've been able to watch participants fall in and out of relationships, find success and failure at their jobs, become mothers and fathers. It's the **longest in-depth longitudinal study on human life ever done**, and it's brought us to a simple and profound conclusion: **Good relationships lead to health and happiness**. The trick is that those relationships must be nurtured.



ATOM
d e s i g n