

Cubesystem's Arch. Rowland Agullana and the
Need for Renewable Energy Systems

words
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images
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Earth Power



John Lennon wrote the famous single “Imagine” during a time of great racial, social, and geopolitical upheaval. Produced in 1971, the song depicts a world free of agendas, profiteering, scarcity, and conflict. Released deep in the heart of the Vietnam War, “Imagine” is a plea for the listener to consider a world free from the shackles of dogma, to spread love just for the sake of love. It’s an antithesis of a call to arms during a time when war was all that people knew.

2650 sqm of greenwall
at Podium, Ortigas



Green Roof
Uniseal's PLANTER CELL®
P30 water retention system

“If we all share the world, what will be left of it?”

The modern world, however, has revealed to us one more issue on our docket: climate change and rapidly draining resources. Lennon ends the song speculating all people sharing the world. But climatologists and green revolutionaries are now asking the question, “If we all share the world, what will be left of it?” This new idea of sustainability or ecological design is more than just an agenda—it’s a way to ensure our continued survival as a species.

As it says in Captain Planet’s motto, “The power is yours!” each of us has a role. However, there are others with the privilege of doing much more. Either they have the skill, position, or political will to enact long-lasting and widespread change. They can be politicians who can pen laws that will limit industries’ impact on the natural world. They can be administrators who can introduce awareness in school curriculums. Or, like Arch. Rowland Agullana, they can be architects who can define how people live, interact, and responsibly harness natural resources within an urban environment.



Four Acres Greenwall
Uniseal's PlanterCell®
Greenwall Panel System

“Climate change affects the world and everyone in it.”

Sprouting

Arch. Rowland Agullana is the CEO of Cubesystem, an architectural firm that spearheads design solutions for building sustainability in the Philippines. Their sphere includes such disciplines as landscape engineering, rainwater management, auto-irrigation, green products and sustainable architecture. Employing practical and eco-friendly approaches, from green walls and roofs to wood/plastic composite timber, Cubesystem's architects and R&D division think out of the box to address humanity's growing carbon footprint.

It's no question that the man leading their charge is just as impassioned with this cause. Arch. Agullana is advocate for action on climate change, and is dedicated with brainstorming new ways of channeling renewable energy sources. With fossil fuels dwindling and nuclear power being misunderstood, Arch. Agullana is tirelessly working on other avenues to meet a growing awareness of sustainable design. In his pursuit, he coined the term 'biophilic design' which is an approach and a guiding principle that "encourages mutual reinforcement between mankind and nature in an integrated architectural solution."

Agullana and Cubesystem have made it their life's work to make renewable energy more accessible for the private citizen. Commonly associated with massive undertakings in the geopolitical sphere, Arch. Agullana is positive that renewable energy can nevertheless be effective at a much smaller scale to great result. He illustrates a concept called the "heat island effect" wherein an urban environment is significantly warmer than surrounding rural areas. The main cause, he attests, is the buildings and structures that hinder proper air flow and generate waste heat. This constant consumption of energy further necessitates looking into more sustainable sources to ensure a more comfortable and tenable city life. "Climate change affects the world and everyone in it."





Nouveau Camiguin
Architectural / Interior Design by
CUBESYSTEM



Changi Airport T4 – Greenwall
Uniseal's PlanterCell® Greenwall Pot System

Photosynthesis

The need for renewable energy in this age is growing every day. According to Arch. Agullana, they are re-evaluating three processes that drastically affect the Earth, its resources, and ultimately, its inhabitants:

- Power: how we produce electricity, where it comes from, and how we allocate it.
- Food: how we produce food, what resources we dedicate in creating and transporting it.
- Nature: how we treat nature, how we mold it to suit our needs, how we sustain it.

Last interviewed by D+C around two years ago, Arch. Agullana was given the spotlight for his work on the Podium greenwall, along with urban and skysrise greenery systems. Back then, he shared his efforts in solving the third issue: Nature. He believed that man and nature should coexist and that the former benefits from the latter much more than initially thought. Now, he's training his sights on to food and energy production. There's no rest for him, but Arch. Agullana is far from weary.

According to his research, if we can figure out ways to address the demands of a growing population, we will be able to mitigate the harsher effects of resource scarcity and climate change. And in a city where towers and skyscrapers blot out the sky, it's high and time to start considering ways we can reduce our impact on the green Earth. And who better can help than the architect? "An architect has a direct impact. If buildings are the source of the heat island effect, then who are the builders?" Arch. Rowland challenges, "What should [architects] change? What should we use? What should we do so that our actions will have a positive effect on our environment?"

Together with his team, Agullana and Cubesystem have come up with processes that they believe will bring about that positive change. If power is a big issue, then you just need to identify where the power comes from and ask yourself, "What if it comes from somewhere else?"

To answer this question, Agullana together with his associate Mr. Zaldy Andaya & Yovel East developed a vertical axis wind turbine that can provide enough kilowatts that can efficiently provide electricity to light up the façade and interiors of an office building. What's even more

elegant about this is how it works. "The client asked us, 'What if there's no wind to power the turbine?'" Arch. Agullana said, "Our reply is it doesn't need wind. The turbine recycles the wind power produced by the cooling towers." Cleverly harnessing what is basically considered a waste by-product, Agullana has managed to cut down on power costs, showing companies that they don't need to break the bank to accommodate a more sustainable operation.

Another thing they're re-evaluating is solar energy. Once the shining figurehead of the renewable energy movement, solar energy's prestige has somehow faded through the years. Though solar energy is criticized for the low battery capacity of its photovoltaic systems, Agullana believes that we shouldn't count it out yet. "Solar energy is much cheaper these days. About 90% cheaper than 10 years ago. Solar farms are becoming more prevalent, too." Agullana continues, "The only issue is the battery, but once you solve this problem, you can ensure that solar power will be more widely used." He can assure that they're looking it, and they're optimistic about its implementation once they iron out the kinks. "If you have a battery that will last you twenty-thirty years, you can actually have small power plants lighting up the whole city. Imagine barangays with micro solar power plants. Imagine that in the province. In communities that still use gaslight."

Arch. Agullana is also exploring the possibilities of wave energy. An archipelago known for its countless beachside resorts, harnessing wave energy offers a multitude of possibilities. As an alternative to solar energy, one can use the kinetic push and pull of the waves to generate electricity. "You won't need a lot. Just enough for the lights."

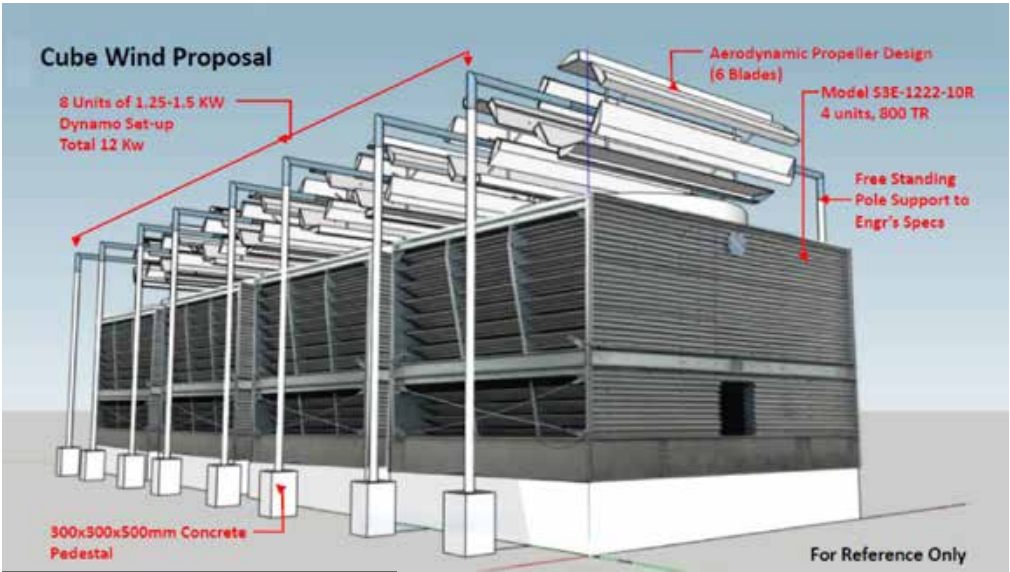
Some companies might be skeptical about the cost-benefit ratio of including a renewable energy source in their buildings or establishments, but Arch. Agullana is adamant in his persuasion. He assures any prospective client or developer that retrofitting an already standing building with a renewable energy source is easy. "You don't need to rebuild from the ground-up." And for those still skeptical, he urges them to look at their operating costs more closely. Green buildings are slightly pricier upfront, but the operating costs will be much lower. "You can expect a 5 to 6 year return of investment," he guarantees, "This is the right time. Otherwise, when are we going to do it?"



Unicorn Tea & Bistro
Indoor Greenwall



Aeroponics System
for microgreens



Cubewind Energy System
Harnesses air exhaust from cooling towers and converts it to sustainable energy



Cube Wind
developed by: YOVEL for VERTES

Organic

Aside from energy production, Arch. Agullana is also busy thinking of ways to streamline food production in the city. The devastation caused by mass food production cannot be understated. Tens of thousands of acres of forest and jungle have been cleared, its inhabitants left homeless, just to produce palm oil. Cattle growing and meat production is the single biggest source of greenhouse gases in the world. Even the simple act of transporting large quantities of food from the province to the city produces chemicals and extra costs. Where others see these issues as necessary evils for survival, Agullana found them to be interesting thought experiments. The solution lies in redefining what belongs in an urban space. If transporting crops and vegetables is a problem, why not completely subtract the middleman? “Imagine a restaurant in the city but on the roof is a fully-functional vegetable garden. Or on top of a shopping mall is a small farm producing microgreens for the restaurants inside.” These ‘green roofs’ not only serve a practical, profit-oriented purpose, they look great. They offer peerless advantages for the storeowner—who normally don’t fully utilize their roof space—with the added benefit of tightening the cycle of food production and drastically lowering the carbon footprint of a major industry. Advantages: food production is nearer the end market. The cycle is tightened and the carbon footprint is lowered. This creates more specialized jobs, too. Caretakers, farmers, and food engineers will be in demand once Arch. Agullana’s plan gains traction.

Sharing further, he mentioned a groundbreaking high-end development in Camiguin, “The client is asking us to do design a greenhouse, along with the rest of the resort.” With his wife doing the interiors and Agullana himself developing the hydroponic system, the greenhouse is promised to grow herbs, crops, and vegetables that will be prepared in the in-house restaurant. Along with the greenhouse, Agullana is also developing the aquaponics, that will double as an irrigation system and fishery.

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Growth

Arch. Agullana is thankful he’s not the only one advocating for kinder, more sustainable building systems. Enjoying support from both new and returning clients, Arch. Agullana is excited that more people are gaining an awareness of climate change and the steps we need to take to somehow reverse it. “In the construction industry, a lot of architects are utilizing sustainable strategies,” he says, “But there’s a lot we can still do.”

And by ‘a lot’, Arch. Agullana meant something really big. “We’re trying to introduce the first 3D-printed house in the country. The goal is targeting low- to middle-income people in the Philippines. Or even OFWs.” 3D-printing is the action or process of making a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession. It’s a more cost-effective alternative to prefabrication or the assembly. It’s a relatively new technology, but using it to such a scale as house construction can drastically shake up a lot of industries. “It’s going to be at least 20% cheaper. Labor is cheaper. And you can build the frame in one day.” Arch. Agullana assures us that the technology already exists. “In a few more years,” he assures us, “This will be the future.”

According to the cartoon series, *Captain Planet*, there are five rings that control each element of nature: Earth, Fire, Wind, Water, and Heart. The last one, Heart, is a frequent source of clever quips and mockery among fans of the show (“What kind of superpower is *heart*?”). However, Arch. Agullana and his efforts make it clear that more than any superpower—money, power, control over the natural elements—Heart is most important. *Heart* moves people to care for people and animals and trees and rocks and seas. Heart drives people to action and protection. Heart motivates great minds to think of solutions and strengthen our bond with an inanimate but *living* world. Heart deserves to be an element of nature because without it, nature will not be able to survive. Agullana’s projects, past and future, all show that his is a Heart beating for a better world for humans and everything else. And all he’s hoping for is for people to listen... and follow that rhythm. **D+C**