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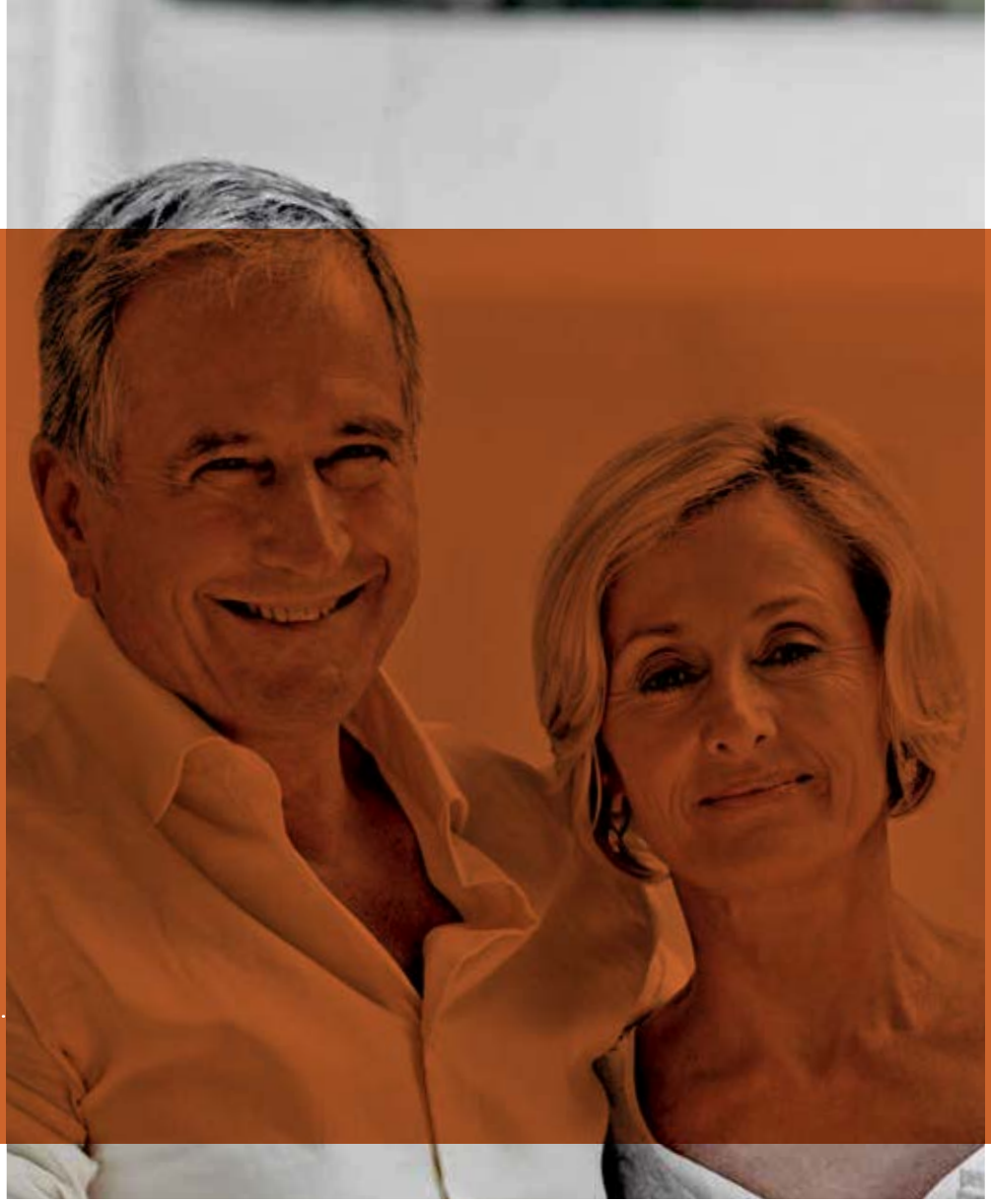

PR FOR PLANET EARTH™

A REPORT ADVOCATING
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SUSTAINABLE DEVELOPMENT

STEEL WINDOWS ENHANCE NATURAL DAYLIGHT IN **PALM BEACH HOME**

ENEREF INSTITUTE EXAMINES THE BENEFITS OF NARROW-FRAME STEEL WINDOWS AND DOORS IN A FLORIDA HOME

What makes Florida's Palm Beach visually alluring, apart from its marvelous weather, is its residential architecture—which, despite the area's unequaled affluence, has preserved its breezy island spirit.

That tone, originally set by architects like Addison Mizner and John Volk, is now being echoed nearly a century later by Lillian Fernandez Interiors and other leading design firms. In constructing her family home,

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I WANTED TO HAVE AS MUCH GLAZING AS POSSIBLE, BUT I DIDN'T WANT BIG FRAMES.

LILLIAN FERNANDEZ | *Lillian Fernandez Interiors*

Fernandez's team has set a pivotal and fresh standard for Palm Beach residences, focusing not just on reflecting the area's famously relaxed aesthetic but also on sustainable, earth-friendly design.

The new home includes, among other things, rooftop solar panels, tankless water heaters, inverter-driven air conditioning, electric outlets for battery-powered cars, and an extensive use of natural interior daylight (NID) throughout.

"We are all about sustainability," explained Lillian Fernandez, who was interviewed for this Eneref Report. "It's very important to us."

BRINGING DAYLIGHT INSIDE

Fernandez credits architect Virginia Dominicis with the home design master concept and attributes technical guidance to architect Stephen Roy. The general contractor was Hugh Davis.

Fernandez, who grew up in Palm Beach, built the new home around the Florida sunshine. "We wanted every room to have exposure," says Fernandez. "We really wanted to design a house that brought the outside in."

Architect Virginia Dominicis said she accomplished this by breaking down the home's three-dimensional massing structure into smaller buildings, so that every separate room, or space, would experience "the awe of having direct contact with natural light and an intimate relationship with the outside."

As such, in spite of its large footprint, there are no rooms without at least some natural interior daylight. "The beauty of this property," noted Dominicis, "is how the home recreates the quintessential beach house and the island life experience."

Natural light is good for our well-being and inspires our creativity, explained Dominicis. "It's really more about controlling the quality of light. Controlling the light in a house like this is just as important as maximizing it."

VIEWS AND EXPOSURE

To achieve the design objective for Fernandez's home, the team began by orienting the rooms to allow for the best natural lighting whenever the rooms would most commonly be used. For example, the walnut-paneled library is located in the north, on the west side, because it's typically used later in the day, before sunset. The library's large windows are oriented for the maximum amount of sunlight to come into the space at just the right time.

"Site planning was first and foremost, and we orient our views based on exposures and lights," said Dominicis. "Window placement is how we design the room, for sunlight or lack of it, because that will define how that room interacts with the outside."

COURTYARD AS LIGHTWELL

Designing the home was a two-year collaboration, according to Fernandez. As architect Stephen Roy explained, "The overall concept is of spaces unfolding and revealing themselves as you progress through the architecture, creating the open feeling that Lillian wanted."

To break up massing, the individual buildings are arranged around a central courtyard with a reflecting pool. The courtyard acts as an enclosed private sanctuary, protecting guests from gusty South Florida winds

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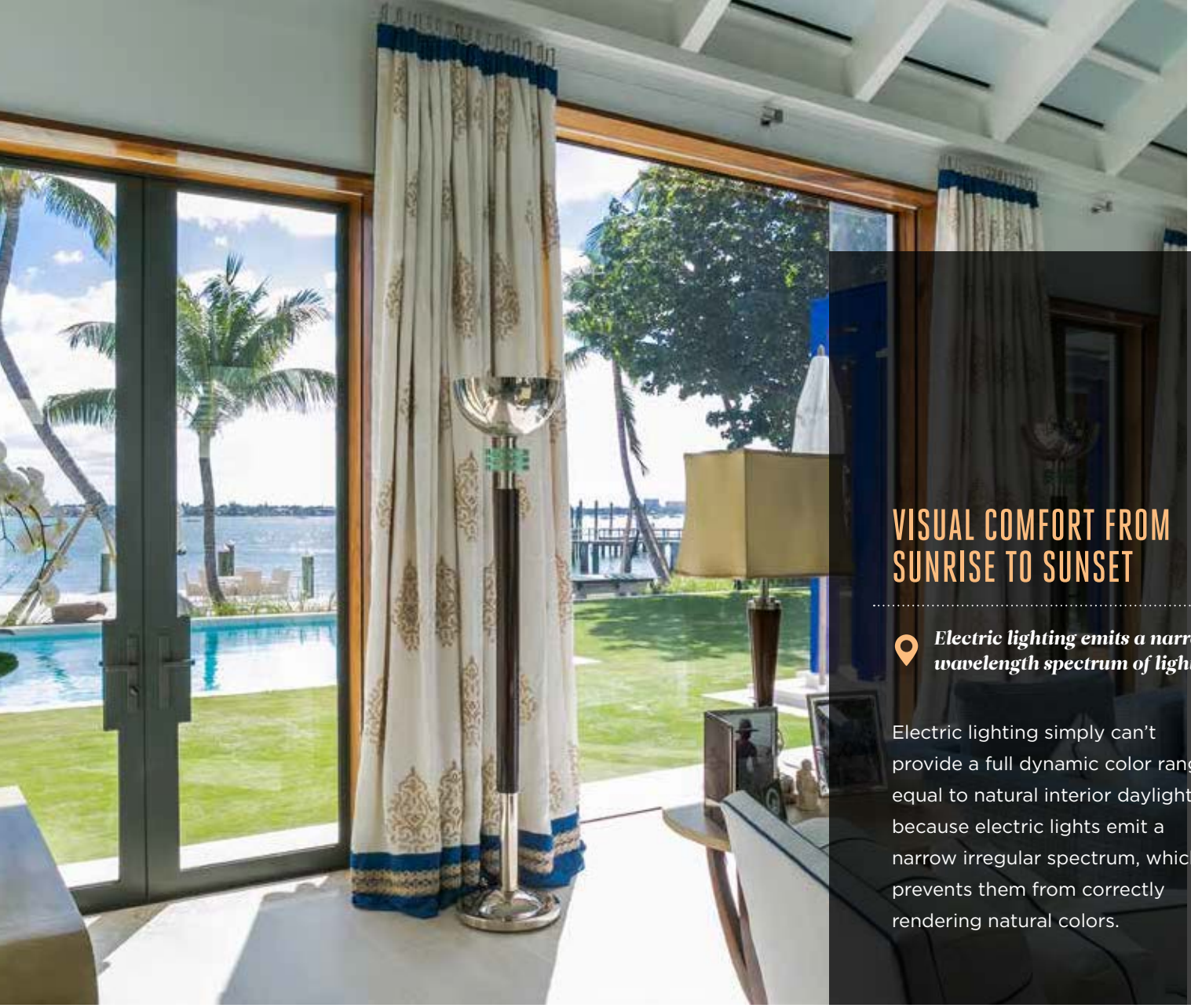

VISUAL COMFORT FROM SUNRISE TO SUNSET

Electric lighting emits a narrow wavelength spectrum of light

Electric lighting simply can't provide a full dynamic color range equal to natural interior daylight because electric lights emit a narrow irregular spectrum, which prevents them from correctly rendering natural colors.

and also serving as a dramatic 50-square-foot lightwell that brings natural daylight into the entire home. Even though the home is both deep and wide, all the spaces are just one room deep, allowing the large windows to bring in sunlight at different points of the day — making natural interior daylight the primary light source throughout the house. To maintain privacy, custom-made wide-blade Bohemian louvered shutters hang in front of the windows.

"Everywhere you are in the house, you're just one window or one view away from the exterior," said Roy. "It's very successful."

SMALL PROFILE WINDOWS AND DOORS

Although admittedly costly, Lillian Fernandez said she considers windows a top priority. "You're looking out the window every single day," she explained.

To weather the strong winds and rains of Florida's hurricane season, Palm Beach building code — like all of South Florida — mandates windows with far greater structural integrity than in other parts of the US. Typically that would require either less window glazing or thicker window frames, neither of which was appealing to Fernandez.

"I wanted to have as much glazing as possible, but I didn't want big frames," explained

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Photo Credit: Francesco Lagnese Photographer

STRONG WINDOWS AND DOORS

Constructing windows and doors to "above code" requirements will protect homes against damage from weather events.

Fernandez. "So I knew that we wanted steel or bronze frames because once you go with wood, you have to have a much thicker frame."

WINDOW SPECIFICATIONS

According to architect Stephen Roy, the project's window specifications were based on Florida building code for both structural integrity and thermal U-value — to keep the stormwinds out and the air conditioning in.

"We had energy calculations done and came up with a set of parameters," explained Roy. "We looked at the design criteria of two manufacturers and ended up using Hope's Windows."

Architect Virginia Dominicis said that the windows' slim profile played an important role in their specification decision. "Early on, Lillian opted for Hope's because their frames were narrower," she said. "Hope's had large hurricane-impact windows and doors with narrow-style frames."

The oversized impact-rated steel picture windows measure 8 feet by 12 feet, with minimally sized frame profiles of just 1.75 inches in depth. "We customized the openings and sizes including the widths, heights, color, and other construction details — like ventilation layouts, window treatments, the floor and header heights, and various other complex design details," explained Jason Malouf, VP of Sales for Hope's Florida Dealer. While Hope's was responsible for the entire assembly, the large insulated glass manufactured to fit the Hope's frames was supplied by Canadian-based Agnora Glass.

"I don't think you could get that size of opening with an all-aluminum product," said

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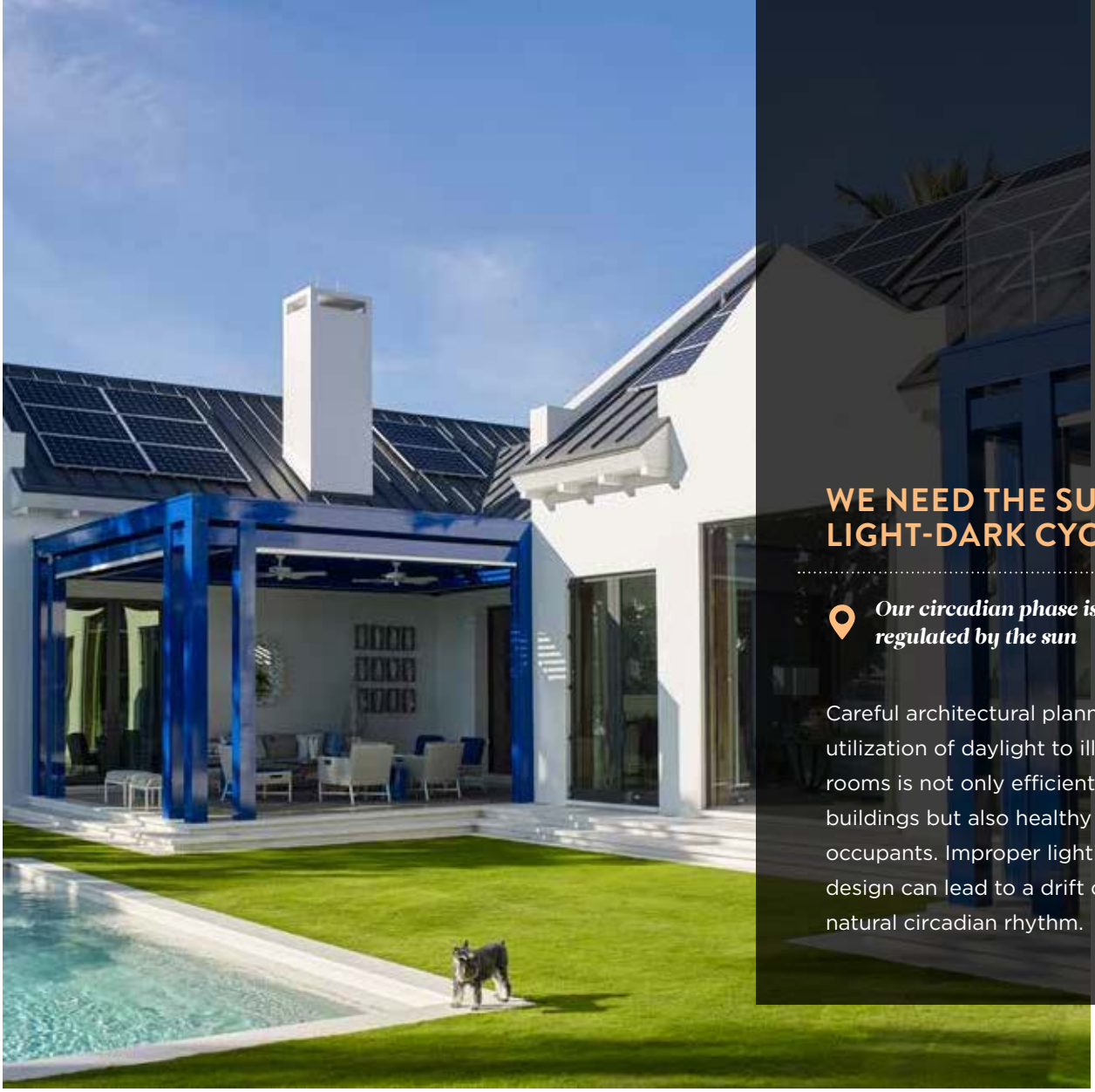

Photo Credit: Francesco Lagnese Photographer

WE NEED THE SUN'S LIGHT-DARK CYCLES

Our circadian phase is regulated by the sun

Careful architectural planning and utilization of daylight to illuminate rooms is not only efficient for buildings but also healthy for occupants. Improper lighting design can lead to a drift of our natural circadian rhythm.

architect Stephen Roy. "Even the steel doors — they're balanced, yet they have a certain weight, a strength to the touch and feel of them."

Fernandez worked closely with the window and glass manufacturers. "I really love the construction part, and I like the clients to be involved," said Fernandez. "I think it's pretty important for the client to understand what the product is they're getting: the way the doors work, the way the windows open."

FORM FOLLOWS ENERGY EFFICIENCY

By using natural interior daylight (NID) as a primary light source, Lillian Fernandez Interiors and her team helped reduce global carbon emissions while enhancing the home's allure. If the US were to maximize all available energy-efficient technologies — as demonstrated in the Fernandez home — the country could reach 40% of the carbon emissions reductions needed to meet the Paris Climate Agreement goals.

"Our team designed an indoor-outdoor beach house that is very efficient, and everybody seems to love the casual aspect of it," said Fernandez.

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