

# Green groundwork

Why design sustainable buildings?  
This couple has the answer

• By MEREDITH PRICE LEVITT

From the outside, an agro-housing building looks just like any other new and attractive apartment complex in an urban environment. But when you take a look inside, things start to appear dramatically different.

Constructed of durable, recyclable materials with high thermal qualities and designed with a large greenhouse that provides residents with a place to grow their own fruits and vegetables, the Knafo-Klimor agro-housing, which won the second international architecture competition for sustainable design in 2007, is the latest in an up-and-coming architectural trend aimed at reducing the massive energy consumption of buildings and making them more sustainable – especially in urban areas. There are currently 11 such projects in various stages of development throughout the country.

Also known as green architecture, according to David Knafo, an architect who created the winning design with his partner and wife, Tagit Klimor, the concept has nothing to do with color. "The world is facing a crisis because we have behaved as if our natural resources were unlimited," says Knafo. "Green architecture means building right, which is to say that all aspects of the building work towards defining a new relationship between nature and humanity that will reduce energy consumption and move towards sustainability."

Why design sustainable buildings? According



to Wikipedia, buildings in the United States account for 39 percent of total energy use, 12% of water consumption, 68% of total electricity consumption and 38% of total carbon dioxide emissions. Globally, the energy consumed within buildings is considered to be one of the most problematic for the environment.

Sustainable design essentially tries to reduce the use of non-renewable resources, minimizing the environmental impact of buildings and humans alike. "The current crisis requires a radical change in urban life and the way we use resources," says Knafo. "We cannot continue to consume at the current rate if we expect to have a future."

Sustainability in the Knafo-Klimor building is twofold. First, the vertical complex consumes less power and energy than other buildings because its structure maximizes the use of natural elements, such as the sun and the wind, to decrease the traditional reliance on electricity and air conditioning/heating. A thermal chimney heats the building in the winter by trapping warm air that builds up from the sun when rooftop windows remain closed. In the summer, the rooftop windows are opened to allow natural cross-ventilation. In addition, balconies and shades are designed to reduce heat absorption in hotter months, while solar panels on the roof add extra heat in the winter. The greenhouse plants are irrigated with recycled water from the building, and ground surfaces are designed to harvest rainwater.

The second element of sustainability relates to the social environment. A day-care center on the bottom floor keeps optional support close to home, reducing the residents' need to travel long distances, while a rooftop terrace offers a space for entertainment and socializing close to home.

It might appear limiting, but according to Knafo, it is exactly the opposite. "People tend to imagine that sustainability means refraining from things like driving or turning on lights or using the bathroom, but this is simply not the case. You cannot ask people to refrain. They will not do it. Rather, what is required is a way to incorporate sustainable practices that will redefine the way we live today and make our lives



Working together for a better environment. David Knafo and Tagit Klimor. Below: Agro-housing sketches. (Meredith Price)

better, healthier and more natural."

Practically speaking, Knafo says that this philosophy means building more windows so that natural light can be maximized. It means using technology and installing more efficient light bulbs that last longer and use less electricity. It means eating more raw foods that are grown locally and using natural ventilation systems rather than putting on the air conditioner.

"Sustainability is a problem of the West," Knafo says. "We simply produce too much waste."

Tagit Klimor agrees that a holistic approach must be taken to sustainability. "This is not just a scientific approach to climate change and pollution," she says. "This is about the well-being of humans and health all together." She points to a simple Chinese proverb, "If a man cheats the land, the land will cheat his belly," to make her point that modern society is exploiting the land. "Agro housing and green architecture provide a way to make a small compensation for our past wrongs and invent new ways of using the land without abusing it."

One of the major downsides is that sustainable building can cost up to 20% more, but government subsidies and construction benefits may soon offset those costs. "These are relatively new concepts, but now that they are becoming a necessity, laws are being introduced to make them mandatory and there may be some help from government agencies." Knafo says he expects more and more green buildings to be constructed. Israel recently implemented a voluntary standard for "buildings with reduced environmental impact" that evaluates the environmental sustainability of buildings based on a point rating system. The US green building council rating system was also implemented on several buildings here, including the Intel Development center in Haifa.

Nevertheless, Knafo says that while Israel has the potential to be a leader in green architecture, it is still lagging behind. "The main thing that people need to understand is that sustainability is not about burden or punishment," he says. "It's an opportunity to create a healthier way of life that is closer to nature, a more human way of life."

Klimor agrees, adding that in modern society we are too busy to be aware of our basic needs, to nourish our bodies and souls and live in harmony with nature at the same time.

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