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## Barn again

### Farm buildings get a design makeover

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The old, black wooden barn is fast disappearing, going the way of barn-raising acts of neighborliness.

It is frequently being replaced these days by kit metal sheds. But some Louisville architects are changing the rural rules.

De Leon & Primmer Architecture Workshop's "Barn B," on the plans for Mason Lane Farm in Oldham County, is a combination hay barn and equipment shed the likes of which have never before been seen. The walls are an open grid of Kentucky-grown bamboo, hand-tied with galvanized wire.

It stands on the construction site off Ky. 1694, next to "Barn A," an equally large but enclosed combination farm office, equipment shed, workroom and storage area, or maintenance barn, clad in dark-brown metal walls with projecting "fins" at tall vertical windows. The fins mediate solar gains and losses according to season. They echo the ventilation openings on traditional, black Kentucky tobacco barns.

It was a serendipitous accident, said designing architect Roberto de Leon, who relocated to Louisville from California with partner Ross Primmer in 2002 with a mission to do work inspired by local and regional traditions.

In another equally unintentional tobacco echo, Barn A — like the stripping rooms of traditional tobacco barns — is heated by a wood-burning "stove" — in this case, a system some distance from the barn that burns farm debris to heat a boiler that distributes heated water through tubing enclosed in the concrete floor.

These are not your grandparents' barns.

Velvety gray Homasote, a recycled-paper board that resists rot, termites and moisture and also soundproofs and insulates better than wood, is used to panel the interior barn office walls. Using precise screw patterns and stacking the panels to create narrow, horizontal ridges adds flair to the design. "We let it be what it is," said de Leon. "If the Homasote gets dirty, you sand it."

Yellow Marmoleum, a linseed-oil flooring tile tougher than vinyl tiles and made without formaldehydes and other additives, appears in the office and bathroom, creating a soft color palette.

Plain old particle board, those inexpensive engineered sheets made of wood bits and scraps "glued" together, are left exposed as the interior work shed walls. In a clever twist, the pragmatic blue lines painted on the boards as nailing guides are aligned to create a subtle Mondrian geometric effect.

It is a long-awaited makeover for the farm owned by Eleanor Bingham Miller, who, with her former husband, architect Roland Miller, wanted to apply sustainable design to agricultural architecture, property planning and management.

Farm buildings are a design field that has been dominated in the recent past by almost no design, in deference to fast construction and low-maintenance materials, such as plastic tarps over aluminum hoops or metal sheeting over conventional frame construction. "Both of us believed firmly that having one of those shiny metal sheds standing in the middle of our property was impossible," Miller said. "Roland conceived it. I implemented it."

De Leon said he recognizes that the new Mason Lane Farm building complex may make it look as if they have broken one too many rules.

"The first rule (of sustainable agricultural construction) is you avoid building on prime agricultural land," said de Leon. The two buildings with retaining walls, landscaping, a storage silo and truck traffic areas occupy nearly an acre of flat land.

However, the project actually helped return land to agricultural planting because it centralized the business and helped to return some fields to soil conservation for the large farm that was once planted "fence-line to fence-line," Miller said.

One important goal was to get all the equipment out of the rain and under a roof and away from various horse operations, she said. Mason Lane Farm was like any farm — outbuildings had proliferated and had declined. The hay storage barn was about to collapse, Miller said.

De Leon and Primmer listened to managers' wish lists for a hay storage barn — ventilation and weather protection — and listened to descriptions of a Utopian maintenance building that would have space, light, big doors and lockable storage and be comfortable to work in during all seasons.

Then they explored how design might enrich the farm and produce buildings and construction methodologies that could be precedents. Qualifying for Leadership in Energy and Environmental Design (LEED) certification at silver, gold and platinum levels requires meeting a long laundry list of sustainable practices and has become a popular reflection of design conscience.

"We are not slaves to LEED," said Primmer. "We eschew it in favor of regional responsibility, (but) this project made a good match of our regional goals and the goals of LEED. The project is being submitted for Gold Certification. And, something we're very excited about, this is a LEED prototype and first for agricultural complexes."

It probably won't be the only rural project that LEED will evaluate, said Miller, but "we'll be leading the way. You're looking at the best sustainability in every system ... as well as the smallest footprint possible." Rural buildings are notorious for being energy hogs, she said. The solution "isn't cost effective, necessarily, the way I did it, but if you look at it long term, more and more things are going this way."

The maintenance barn has insulated windows and its strategic placement reduces solar gain and decreases the need for electric lighting. It is a "dark sky" building with lights placed so it won't add light pollution to the night sky. Some of that goal was impelled by the fact that the University of Louisville astronomy studies are conducted on the farm.

Behind the barns are a series of wetland and rain gardens that use the water harvested from the roofs of the barns, and the entire site is enclosed in a new landscape of native Kentucky trees such as cedars and walnuts, under-planted with prairie dropseed grass and other natives. The landscape material and design are by Mike Smiley of Environs Inc. in Middletown, Ky., and Margaret Shea of Dropseed Plant Nursery in Goshen, Ky.

All construction materials were pre-sized, and all were manufactured within a 500-mile radius of Louisville. The bamboo came from landscaper and bamboo buff Richard Wolford in Eastwood, Ky. Once all the material bundles were on site, the project went up in 10 weeks, said Steve Mense of Henryville, Ind., supervisor for Lichtefeld Inc., a Louisville construction and design build company founded in 1918.

"For us, this was a test case of how to do it with regionally sustainable design and, if it qualifies for LEED, great," de Leon said. Plus, he said, "This has been the most fun project. Eleanor has been a great client. Lichtefeld has been awesome."

For more information, visit [www.deleon-primmer.com](http://www.deleon-primmer.com).

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