Located on a 60-acre prairie preserve near Taylor, Texas, Alligator Creek is a completely off-grid house producing 100% of required power through solar panels and collecting rainwater for all potable water needs. With the building footprint minimized, the remaining site is being reclaimed as natural habitat by eliminating invasive species. Drawing inspiration from Texas vernacular construction and Japanese architecture, the design is reminiscent of a farmhouse with Japanese-style bays. This project contains an 18,000-gallon cistern integrated into the foundation, on-site wastewater management, and SIP (Structural Insulated Panel) roofing. The house is naturally ventilated by operable skylights and generous sliding doors that capture prevailing winds for passive cooling and utilizes wood burning stoves for heating.

Materials from an old farmhouse were repurposed and reused, including longleaf pine flooring, columns, cladding, and corrugated tin roofing. Except for minimal exterior stucco and sustainable bamboo ceiling treatment, nearly 100% of exterior and interior cladding is salvaged material. Runoff from the roof is collected in the 18,000-gallon cistern, built into the foundation, to be used as the water supply of the building. All grey water is used for irrigation.

The use of a raised ground floor helps to capture prevailing winds for passive cooling.

A 10-kW solar array located on the carport roof provides electricity.

The roof of Alligator Creek is composed of structurally insulated panels.

Operable apertures, including strategically placed operable skylights and entire walls composed of generous sliding doors, encourage cross ventilation for passive cooling.

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The dog trot separates the building into two distinct halves to passively cool the house and make use of more natural light.