Desert Oasis: A Design-Build Project in the Mojave Desert

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Native Americans, Mormon settlers, and railroad barons settled the Las Vegas valley as an oasis in the Mojave Desert due to its naturally occurring springs. Over the years, overuse led to severe water shortages and the eventual disappearance of the springs in 1962, just 57 years after the city was founded. This house's water feature evokes the original springs of Las Vegas, while serving as a reminder of this vital resource's preciousness. While the project was completed in Fall 2013, this modular home will be moved to its permanent location at the Las Vegas Springs Preserve, a cultural institution located at Las Vegas' original spring in early 2014. The house will continue to educate the public about sustainability and conservation issues.

By focusing on passive systems, this house regulates its interior temperatures naturally, lessening its reliance on active systems. Our team thoughtfully integrated a number of passive systems into the design, including ventilation, orientation, and daylighting. When clerestory windows, located in the north walls, and the doors on the south walls are open, cross ventilation captures the natural breezes, which then enter into the interior of the home, helping to cool it. In addition to providing cross ventilation, the windows and glass doors allow natural daylight to enter the home, minimizing the need for electric lighting. All glazing is oriented on the north and south sides of the home, allowing overhangs to shade the house in the summer, reducing heat gain, while still allowing direct sunlight to enter in the winter, when the solar angle is low and heat gain is desired.

Naturally-weathered exterior materials were selected for their ability to survive the desert climate, while also referencing the materials of old mining towns and outposts scattered across the Mojave Desert. The exterior cladding is a ventilated rainscreen made with weathered wood that has aged to a silver color; while the exterior steel structures and window boxes are steel with a rusted finish. The exterior is rugged and rough, like the environment, while the interior has a more refined quality that creates a modern atmosphere within a contemporary house.

Providing shade is a critical part of creating pleasant outdoor spaces and reducing direct solar heat gain. The digitally fabricated metal screens provide shade while the pattern recreates the effect of light filtering through the branches of a native mesquite tree that can survive the arid climate. In the winter, the screens can be opened to allow the sunlight to help heat the house.

Through its incorporation of desert plants, this house demonstrates a sustainable, water smart landscape design that creates pleasant outdoor spaces full of vegetation, while minimizing the landscape's need for irrigation once it is established. The house's native landscape will continue to grow, seamlessly integrating it into the Mojave environment.





















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