

**Project:** *Brian & Laura Davis  
Residence*

**Location:** *Scottsdale, Arizona*

## Challenge:

*Building a home in Scottsdale, Arizona to maintain comfort and efficiency in harsh summers.*

## The Solution:

*Daikin Multi-Split heat pumps with “Slim Duct” indoor units.*

Brian and Laura Davis knew that building their dream home in Scottsdale, Arizona would have its challenges. In spite of the extreme temperatures, the Davis’ wanted comfort and efficiency in their new home.



The home’s wall and ceiling panels were to be constructed of high-efficiency engineered foam material with total wall and roof R-values of R-35 and R-62, respectively. Local HVAC contractors recommended traditional ducted unitary heating and cooling systems, which were oversized and bulky, and created excessive soffits and tremendous electrical load burdens. This, in turn, created the need for additional photovoltaic (PV) panels to offset the Locked Rotor Amps (LRA) of the proposed unitary solutions. The Davis’ desire for optimal zoning, efficiency and quiet operation were nearly impossible to achieve through these solutions.

Enter Tempe Mechanical, who proposed using 3 Daikin high efficiency multi-split heat pump systems with “slim duct” style indoor units. These concealed fan coils maximized the zoning, dramatically minimizing the amount of large ductwork that would have been required for a traditional unitary style system. For optimum comfort levels, 9 separate heating/cooling zones were created. Soffits were minimized, with no exposed ducts or wall-mount fan coils visible. The overall tonnage was reduced by making good use of zoning and diversity. This, combined with the “soft start” of the Daikin inverter compressor, meant that no additional PV panels or circuits

were required. By employing these high-efficiency Daikin multi-splits, the contractor enabled the dream of a comfortable, near “net-zero energy” home to become a reality. The Daikin systems easily maintained the Davis’ desired 78 degrees indoors with outside high temperatures in excess of 115 degrees! These units, in conjunction with a properly designed fresh air ventilation system, have created a clean, comfortable and incredibly efficient home comfort system that will serve the Davis’ well for years to come.

## Project Information

General Contractor: Brian Davis  
Garrison Engineered, Inc.

HVAC Contractor: Vince Palermo  
Tempe Mechanical

Distributor: Gary Alleman  
Geary Pacific Supply

## Daikin AC Equipment

- 1 (Model # 3MXS24JVJU) Outdoor Unit
- 2 (Model # 4MXS32GVJU) Outdoor Unit
- 1 (Model # FDXS09LVJU) Indoor Unit
- 1 (Model # FDXS12LVJU) Indoor Unit
- 1 (Model # FTXS15LVJU) Indoor Unit

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