

PROJECT:

So-Cal single story home

LOCATION

Orange County, CA

COMPLETION DATE

June, 2020

THE TEAM:

HVAC CONTRACTOR:

DPL Air Conditioning

HVAC DISTRIBUTOR:

Geary Pacific Supply

AIRSTAGE® J-II

EARLY-70'S HOME UPDATED FOR NEW CENTURY EFFICIENCIES

A classic 4-bedroom, 3 bath, single story home in Orange County, California. Constructed in 1971, the original home was built without insulation! Now, the completely remodeled, 2,470 square foot home includes all new double pane windows, blown-in wall insulation and R-30 attic insulation.

DESIGN CHALLENGE

The existing split system consisted of a natural gas fired furnace located in a hall closet on a raised platform, with a 5-ton condensing unit on the side of the house. The original ducting was sized for heating CFM only; uninsulated and not conducive for efficient operation. Air distribution consisted of a single, central return grill, at floor level in the hallway, typical for homes in Southern California. The supply registers were also undersized

to manage the cooling CFM requirements.

The existing system was extremely noisy, both indoor and outdoor units. Operating this system during the numerous warm California months resulted in elevated energy tier rates. The home was less than comfortable, with extreme temperature conditions throughout the rooms, especially in the Master Suite. Although the installation was straightforward, with a comprehensive ACCA Manual J Load Calculation and Manual D Duct Design, the existing system had to be replaced in its entirety.

WHY FUJITSU WAS CHOSEN

Fujitsu was chosen for this house to solve the noise and comfort issues, based upon Airstage "J-Series" recommendation from the HVAC Distributor, Geary Pacific. Additionally, this was the first Airstage system installation for the HVAC contractor, DPL Air Conditioning, based in Orange County, California, with installation supervision provided by the Technical Staff of Geary Pacific. Although J-Series permits refrigerant line lengths up to an incredible 393' between the outdoor unit and farthest indoor



CASE STUDY

unit, all indoor units were within a 60' span from each other.

The 5 ton J-II outdoor unit also facilitates up to an impressive (15) indoor unit count, with indoor unit capacities as small as 4,000 BTUH to meet the smallest of zone demand.

THE RESULTS

The home was separated into (3) zones, based upon exposure and usage. The equipment selected was a 5 ton, single phase Fujitsu Airstage J-II outdoor unit, with ducted indoor units. This selection provides a combination ratio of 103% out of the 130% availability, which leaves open the possibility for future expansion. The high combination ratio for single phase equipment offers the contractor to size each zone for its individual peak load, while maintaining the capacity



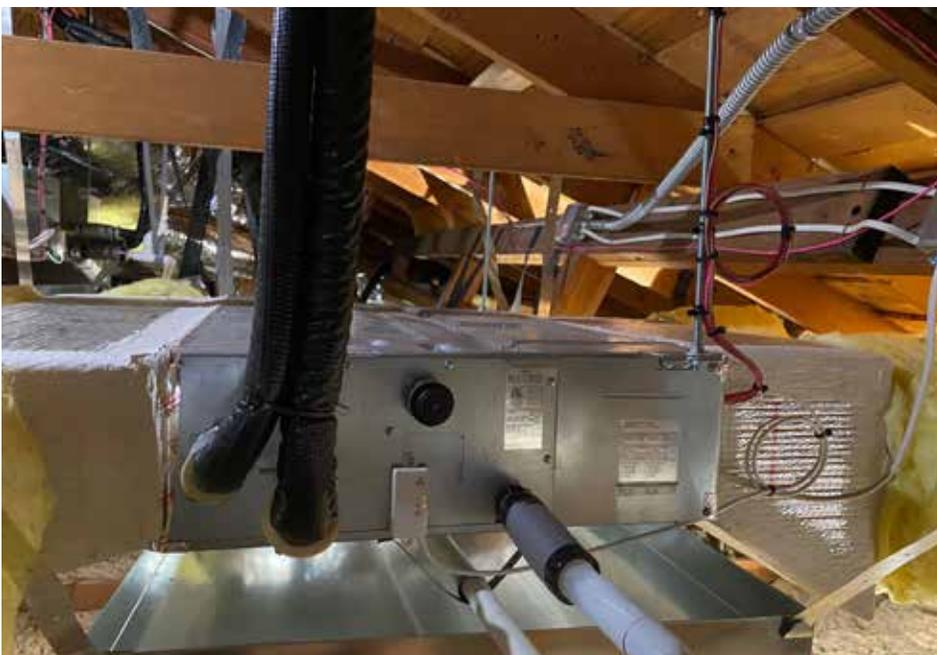
Medium Static Pressure Duct Indoor Unit.

of the outdoor unit to manage an average of each zone peak, as the zones will not peak at the same time. Careful analysis of the load calculation excursion details was performed by DPL Air Conditioning, and verified by Geary Pacific's Senior Technical Service Advisor, Gary Alleman.

All indoor units are controlled from the latest wall mount remote control (RC) from Fujitsu, with programmability to meet California Title 24 requirements. In addition, each indoor unit is equipped with an optional Wi-fi adapter for ducted models, thus the customer may control any of the (3) indoor units locally or remotely via the "FGLair" app.

All new R-8 ducting was installed, with new, well designed and sealed supply and return plenums for conveying the BTU's exactly where they need to go. The duct distribution system performance was verified using airflow using a flow hood, and all (3) indoor air handling units were tested for external static pressure with impressive results from .38" to .40" w.c., proof positive of prudent system design and quality installation.

The operation of the Airstage equipment was verified using the proprietary Fujitsu "Service Tool"



Compact Slim Duct Indoor unit with optional wi-fi module is installed.

AIRSTAGE EQUIPMENT LIST:

1	AOU60RLAVM - J-II Heat Pump Outdoor Unit
1	ARUM30TLAV2- Medium Static Pressure Duct Indoor Unit
1	ARUL18TLAV2 - Slim Compact Duct Indoor Unit
1	ARUL14TLAV - Slim Compact Duct Indoor Unit
3	UTY-RNRUZ4 - Touch Panel Wired Remote Control
3	UTY-TFSXZ2 - Wi-Fi Interface Module

software, which provides literally dozens of operation points, from voltages, amperage, EEV pulses, even automatic calculation of subcooling and superheat values, all within easy to understand graphics. An impressive,

contractor friendly feature of Service Tool is, once the system is charged, refrigerant gauges are no longer needed! Service Tool requires a simple, 2 wire, non-polarity connection to any indoor unit or outdoor unit to record



operating data for permanent record.

CUSTOMER TESTIMONIAL

Although J-Series is by definition, an applied VRF system, DPL Air Conditioning was impressed with how easy the system was to install, and especially thankful for Geary Pacific partnering during their first Airstage installation through every step of the process.

Concerning comfort, the homeowners were literally surprised at the precise temperature control they now had with each zone of the home. Keeping a cool 72 degrees within each zone helps this work-from-home family comfortable and productive all day, every day!

"We can't even hear whether the system is on or off inside the house, it's just comfortable now all the time" is their testimony, which they literally feel! "We can enjoy our backyard now too because the new A/C is so quiet, we don't even know whether it's on or off, what a huge difference that makes."

An additional benefit of the J-Series system installation was to gain the closet space where the old furnace once existed!

At Fujitsu General America, we believe in developing and supporting a strong relationship with our Distribution partners and their HVAC Contractor customers. The success of this first Airstage installation is testimony to the collaborative relationship between Geary Pacific and DPL Air Conditioning.



- ISO9001
- ISO14001

FUJITSU GENERAL AMERICA, INC.
 340 Changebridge Road • Pine Brook, NJ 07058
 Toll Free: (888) 888-3424
 Local: (973) 575-0380
www.fujitsugeneral.com
 A subsidiary of Fujitsu General Limited

