

## Rivera Energy Improvements

Duct leakage 140 cfm<sub>25</sub> from before 670 cfm<sub>25</sub>

Duct leakage 96 cfm<sub>25</sub> to outside using blower door@cfm<sub>25</sub>

Shell Leakage 1700 cfm<sub>50</sub> from before 2575 cfm<sub>50</sub>

Master Bedroom m Energy Upgrade:

The main scope of work was in the Master bedroom suite. This room had a large condensation problem in the winter on the back side of 20 sq. ft exterior window. We sealed a large opening in the sub floor that was cut for plumbing trap for jet tub in the crawl space. We sealed an opening in the Master Bedroom vanity which gave access for jet tub pump. We installed one Panasonic Whisper green fan and ducted to outside. The only supply duct for the MB was located under dresser, this was relocated to an un-obstructed area. We removed all the roof R-30 bat insulation in the Master suite attic. Air-sealed top, installed air tight boxes over canned lighting, installed air baffles for attic venting, and R-50 loose fill fiberglass insulation, air sealed and insulated Attic hatch. Air sealed sub floor under Master suite.

General Energy Upgrades:

Air sealed Furnace and entire accessible duct system in crawl space

Return air used a large body cavity for return ducting. We were able to air seal with duct board which reduced a large amount of duct leakage.

Sealed all boots to floor and sheetrock

Air sealed large opening in upstairs attic communicating in a widened wall on the second floor

Installed 1 Panasonic whisper green 70 in Master Bath confirmed 90 CFM exhaust with flow hood. This fan runs continuously at 40 CFM confirmed with flow f hood.

York 100,000 BTU 5 ton Heating and cooling system Oversized

Existing furnace York Model -FG9C10020DH11D Combustion CO 54ppm

Existing Coil All Style Model-ASF608A31+D fixed metering device

Existing York Air Conditioner Model-AC060X1223A 5 ton

Water Heater State 50 Gallon **sealed combustion**

Cooling system runs at .93 static with clean filter Maximum Static .50 from Manufacturer

Combustion at 60 degree outside temperature

## Rivera Energy Improvements

Water Heater sealed combustion 6ppm CO PASS

Furnace sealed combustion Pascal 56ppm CO PASS

All cook top burners under 5ppm Co- Griddle at 28ppm CO PASS

Electric oven

### New HVAC Air Flow Rates

Dining Room 140

Live 1 120

Live 2 155

Live 3 166

Kitchen 1 155

Kitchen 2 130

Laundry 60

Ron's Office 115

Master Bed 150

Master toe kick 100

Water closet 45

Upper Bath 67

Upper Bed right 58

Upper Bed Left 75

Total CFM 1,536

307 CFM per ton roughly at 75% system capacity

400 CFM per ton required by Industry

This Airflow is delivering less than 4 tons of Air with a 5 ton compressor.

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Room Pressure with door closed (BPI Standards 3 Pascal's)

Master Bedroom 13.5 Pascal

(Jumper duct recommend at minimum cut door)

Master Bath 5 Pascal

Ron's Office 4.5 Pascal

Laundry 1.5 Pascal

Upper bed Left 5.2 Pascal

Upper Bed Right 4.0 Pascal



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WITH  
ENERGY STAR