

Effective Energy Upgrades for La Luz Units: Heat Pumps, Step 2

Once a La Luz roof has been upgraded with new insulation below and above the roof deck, it is feasible to install modern HVAC equipment. 98% efficient furnaces can replace standard 70% efficient heating equipment with the advantage of eliminating the combustion air chase. The original combustion fresh air venting was from an outside wall or from the roof. The vent provides a fresh air source in the mechanical room for proper natural gas combustion in furnaces and water heaters. It also provides an entry point for mice, dust and for cold air in the dead of winter. If the furnace is upgraded to the 98% standard, the water heater will also need to be a 98% efficient unit to allow for removal of the combustion air duct.

New 98% efficiency equipment pulls air from the vent stack directly into the equipment and exhausts the products of combustion through the same vent assembly. This eliminates the drafty cold air, dust, mice and bulky duct into the mechanical room through the roof or a closet.

New HVAC equipment should incorporate a heat pump if you plan to eventually add solar panels. The heat pump is air conditioning in reverse. The refrigerant pulls heat from winter outside air and transfers it to the inside through the same coil used for A/C in the summertime. It is more expensive to heat with electricity unless the unit has solar collectors installed. In such case, the natural gas bill is greatly reduced (or eliminated) as electricity for day time heating is produced onsite with the excess sold back to the grid. Electricity for nighttime heating comes from the grid. There may be nighttime rate incentives moving forward to compensate homeowners who install solar systems that feed the grid during the daytime.

When replacing an HVAC system, it is therefore wise to install a 98% efficient HVAC unit with a heat pump that can be engaged once solar power is available. With a properly insulated roof, a La Luz unit can cover energy costs for heating and cooling with solar generation. The heat pump is at the heart of this solution when combined with a properly sized solar generation array. The insulation is the key factor in reducing the heating and cooling loads to levels that can be sustained by onsite generation.