



**LEGEND:**  
 P – Pump  
 E – Heat Exchanger  
 SBT – Split Buffer Tank  
 —→ Low Temp. Return  
 —→ High Temp. Supply



- Solar Thermal SBT System improves system economy by operating at much higher water temperature differential [40°C/50°C compared to conventional 10°C] for maximum solar panel adsorption/output and greater SBT thermal-mass storage.
- Solar Thermal SBT System provides better boiler economy. SBT thermal storage/ZERO MIXING concept integration into HVAC-solar operation maximizes panel energy output at any outdoor condition, increasing system solar fraction and therefore reducing supplemental boiler heat.
- Solar Thermal SBT System allow faster response to solar availability [compared to conventional passive heating systems] for improved year around performance. SBT/Zero-Mixing uses heat transfer force-to-force convection on E1 [20-times more efficient] compared to configurations a, b, d, and e, which rely on inefficient/ineffective force-to-natural convection process.
- Solar Thermal SBT System improves fluid thermal-mass density transportation with hydronic [piping, valves, and pumping] equipment 50% oversize reduction on newly designed facilities, slashing capital investment cost by half, and improving project PV, ROI and payback. SBT integration enables higher temperature system/storage differential  $\Delta T \approx 40^\circ\text{C}/50^\circ\text{C}$ , compared to customary  $\Delta T \approx 10^\circ\text{C}/20^\circ\text{C}$ .
- In new retrofits it reduces CO2 emissions creating opportunities for positive cash flow from carbon credits

*DBBS. is in the process of developing new solar panel technology incorporating the new Zero-Mixing concept into flat panel evacuated tube designs. The new technology will also include improvements to hydronics and system controls to support a more efficient higher-temperature differential operation. Conventional systems operates at customary  $\Delta T \approx 10^\circ\text{C}$ .*