

Ground Source Fact Sheet for the Military

- Ground source technology has garnered wide praise from the military. According to Military Handbook 1190, "The most efficient method of using electricity for heating is the [Ground source] heat pump." The Environmental Protection Agency (EPA) concurs that Ground source technology provides the most energy-efficient, environmentally clean, and cost-effective space conditioning available.
- Unlike conventional HVAC systems, ground source systems are located entirely indoors and underground, which reduces the chance of being targeted by terrorists or others unfriendly to the U.S.
- The Department of Defense (DOD) is the largest user of electricity in the nation. About 40 percent of electricity at DOD facilities is used for space conditioning and water heating. Annual expenditure is over \$700 million. The DOD also occupies more than 60% of the gross space of all federal facilities, constituting almost two billion square feet of space.
- The Energy Policy Act of 1992 (EPACT) and a later executive order directed the military to reduce energy consumption by 20 percent by the year 2000, and a full 30 percent by 2005. The federal government also directed DOD to use technologies--such as Ground source--that employ renewable resources.
- Every year, electrical space conditioning and water heating at DOD facilities generates an estimated 18 million tons of CO₂, 68 tons of SO_x, and 30 tons of NO_x. All these emissions could be reduced dramatically if ground source units were installed.
- The single largest installation ever of Ground source systems took place at the Fort Polk Joint Readiness Training Center in Leesville, LA. Over 4,000 ground source units were connected to 700 miles of underground pipes, replacing an aging HVAC system. The project has saved Fort Polk over \$3 million a year in energy and maintenance costs, and won the "Golden Hammer Award" in 1997.
- As a result of leakage and accidents, conventional HVAC systems can release harmful refrigerants. Ground source reduces this environmental threat by using only a quarter of the refrigerant required by air source heat pumps. (One ground source installation in Ft. Hood, Texas, uses a mere five percent of the refrigerant previously used for cooling.)
- Military bases often have an unusually broad range of buildings well-suited to ground source installations: single and multi-family housing, computer facilities, barracks, storage facilities, guard houses, training facilities, and administrative buildings.
- If just 400,000 3-ton ground source units replaced conventional HVAC equipment in military and government facilities, annual greenhouse gas emissions would be cut by over a million metric tons of carbon. This is equivalent to taking 500,000 cars off the road or planting over a million acres of trees.