

Ground Source Heat Pump Estimated Useful Life

A primary consideration in program design



According to the American Society of Heating, Refrigerating and Air-Conditioning Engineers, **GSHPs have an average equipment life of greater than 24 years.**

Owning and Operating Costs

Table 4 Comparison of Service Life Estimates

Equipment Item	Median Service Life, Years		Equipment Item	Median Service Life, Years	
	Abramson et al. (2005)	Akalin (1978)		Abramson et al. (2005)	Akalin (1978)
Air Conditioners			Air Terminals		
Window unit	N/A*	10	Diffusers, grilles, and registers	N/A*	27
Residential single or split package	N/A*	15	Induction and fan-coil units	N/A*	20
Commercial through-the-wall	N/A*	15	VAV and double-duct boxes	N/A*	20
Water-cooled package	>24	15	Air washers	N/A*	17
Heat pumps			Ductwork	N/A*	30
Residential air-to-air	N/A*	15 ^b	Dampers	N/A*	20
Commercial air-to-air	N/A*	15	Fans	N/A*	
Commercial water-to-air	>24	19	Centrifugal	N/A*	25
Roof-top air conditioners			Axial	N/A*	20
Single-zone	N/A*	15	Propeller	N/A*	15

Source: 2015 ASHRAE HVAC Applications Section 37.3



GSHP Ground Heat Exchangers are constructed of high-density polyethylene and are generally warrantied by the manufacturer for greater than 50 years.

Their estimated useful life is greater than 100 years.

GeoLink 55-Year “No Leak” Earth Loop Warranty

The WaterFurnace GeoLink earth loop pipe and fittings are protected against rust, rot, electrolytic corrosion and defects in materials and workmanship for 55 years. WaterFurnace also offers an optional **55-Year No Leak Loop Warranty** that covers material and labor for repairs due to materials or workmanship. WaterFurnace "Geo-Link" pipe and fittings must be used and the loop must be installed with WaterFurnace equipment by a WF Geothermal Services Contractor (GSC). **55-Year No Leak Loop Warranty** applications are available directly from WF customer service. Contact WF Training for GSC certification requirements.

Product	Standard Coverage	Optional Coverage
GeoLink Loop Pipe	55 years (pipe and fittings only)	55 Year "No Leak" Warranty* 55YR-LOOP-WARR

*In order to process a claim under this warranty, a quote must be submitted to warranty and approved before any work can be started.

HyperLoop not included in this warranty.

The 55-Year No Leak Loop Warranty is transferable for a fee. Contact warranty for more details or to process a transfer.



Lifetime costs of the entire system, not just the heat pump itself, need to be taken into account.

These lifetime savings are especially important to LMI customers.

Long Term Savings	
Fuel Oil w/ A/C	GSHP
Adjusted Install Price \$98,569.26	Adjusted Install Price \$66,937.41
+ Adjusted Op. Cost \$296,860.40	+ Adjusted Op. Cost \$131,978.01
<hr/> Ownership Cost \$395,429.66	<hr/> Ownership Cost \$198,915.42
Conventional Ownership Cost \$395,429.66 — GSHP Ownership Cost \$198,915.42	
= Long Term Savings \$196,514.24	

Source: Achieve Renewable Energy modeling



Thank you!
Ryan Dougherty, COO
Geothermal Exchange Organization
Ryan@GeoExchange.org
(217) 572-1261

