



Get the skinny: tracer/locating wire vs. THHN

Tracer wire (also known as locating wire) is without question an underrated and underused product. Used mainly by gas, water, fiber-optic, and sanitation companies, its main use is for locating buried plastic pipes and fiber optics. Many contractors will mistakenly use THHN for this function, although this is a poor choice for many reasons.

Many times plastic pipes or fiber optics are buried underground, leading to houses and buildings due to their strong flexibility under adverse conditions such as excess heat or cold, rainstorms, etc. When one of these are used underground, you must have a wire that is durable, flexible, and has strong insulation side-by-side with the plastic pipe or fiber optics in case you ever need to locate them (hence the name locating wire).

Potential problems

Imagine there is a gas leak of some kind. The gas company will have to dig up the pipe in order to find the exact location of the problem. Here is where THHN is potentially problematic.

THHN does not have the insulation necessary to hold up over time. Typical underground installations are expected to last up to 30 years. Nylon, the main covering of THHN, is very susceptible to water and moisture, causing additional breakdowns in the wiring under adverse conditions. All of

these will cause THHN to wear down and erode, rendering itself useless over the course of several years. In all likelihood, THHN will often need to be replaced once or even twice over the course of a building project's life span.

This is where tracer wire comes into play. With 30 to 45 MIL of Polyethylene, tracer wire has all the flexibility of THHN, but with far better insulation and protection against underground conditions. Polyethylene offers a very strong insulation, often double or even triple that of THHN, meaning it can withstand even the toughest of underground conditions. Just as important, companies will save thousands of dollars and hundreds of valuable labor hours because they will not have to dig up and replace tracer/locating wire the way they will with THHN.

The only real case for using THHN for direct burial (even though it is not rated for it) is that it is inexpensive. However, when you consider future costs to repair and replace THHN, over the long haul costs often end up skyrocketing. In addition, tracer wire/locating wire is much more affordable than you may have been led to believe.

Even with all the added benefits, tracer wire costs a mere fraction more than THHN, with a tremendous upside in terms of increased insulation, heat-resistance, and durability. For example #14 THHN may run around \$25/MFT. Tracer wire/locating wire would likely run only in the \$28 to \$30/MFT range, a terrific investment given its substantial benefits. Tracer wire can save fiber-optic, gas, water, and sanitation companies thousands of dollars in not only the replacement of wire, but also valuable time and energy in the form of labor hours and wasted material. With tracer wire's increased durability over 30-plus years in an underground setting, it is by far the better choice over the long haul for any underground wiring project. ◆

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After two years underground, buried THHN (bottom) shows much deterioration. The PE insulated material, on the other hand, stood up very well.

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