

**TECHNICAL UPDATE - TU-2003**

**SUBJECT: Installing Dekoron/Unitherm Bundles Below Grade**

Dekoron/Unitherm Preinsulated and Traced Tubing Bundles are not generally designed to be installed below grade. They can be modified for direct burial or used as-is if certain precautions are taken.

Dekoron/Unitherm suggests the following steps for any below-grade installation. These steps should be in addition to any local codes and standards.

A bundle designed for direct burial begins as a standard bundle with a FR-PVC or alternate jacket material. This is then surrounded by a galvanized steel interlock armor. The armor is then covered with a Flame Retardant Polyethylene outer jacket. This provides mechanical protection and protection from ground water.

The bundle should be installed below the frost line, if necessary, and covered with loose fill. A sand fill immediately around the bundle is preferred. Heavy rocks and construction debris should not be used as bedding or fill material.

This installation method should not be used in traffic areas.

Both ends of the bundle must exit above grade and be sealed properly.

A better method for below grade installing is the use of a conduit.

A standard bundle can be installed in a conduit below grade if:

1. the area of the inside of the conduit is 4 times the cross-sectional area of the bundle;
2. the conduit is straight;
3. the conduit is sealed at both ends to prevent surface water or rain from entering;
4. the bundle is properly sealed and terminated at each end.

Fill and drainage for the conduit should follow local requirements.

The user should be aware that the heat loss by conduction through soil can be 10 times the heat loss seen in an above-ground installation. Bundles may require additional insulation to meet design temperature requirements.