

LTO
PRODUCTS, INC.



WARMFLOORS.com

HYDRONIC RADIANT FLOOR HEATING

Installation Manual

Introduction

*Heat Loss Calculation
Typical Heat Sources
Tubing Spacing
Recommended Tools*

1



Contents

Introduction **1**

Heat Loss Information
Typical Heat Sources
Tubing Spacing
Basic Tools Recommended

Floor Type Installations **2**

Installation Considerations
Floor Types
Guidelines
Tubing Layouts

WarmmFloors Models **3**

Model Selections
Installation Procedures and Guidelines
Start Up Procedures

Fill and Purge Procedures **4**

Quick Purging
Water Treatment
Glycol

Electrical Diagrams **5**

**A Heat Loss Calculation Excel form may be downloaded from
www.WarmmFloors.com/heat_loss_calculation**

To perform an accurate calculation, you will need the following information:

- Location
- Floor Plan
- Outside Design Temperature - Typically the coldest day of the season.
- Inside Design Temperature - Desired inside temperature.
- Heat Source
- Floor Type
- Window and Door
- Specific requirements

The WarmmFloors Heat Loss Calculation will document all values including fluid requirement.

Typical Heat Sources for Floor Heating

The following steps are recommended:

1. Determine the type of construction being installed
2. Make a heat loss calculation
3. Determine the number of zones needed
4. Determine heat source

The heat source choice depends on availability and regional cost. The system is readily adaptable to a dual source heat supply. The heat source is typically between 80° F and 160° F. This low temperature requirement makes this heating system suitable to virtually any heat source.

Typical Heat Sources:

- Natural gas - up to 96 % efficient
- Propane (LP) - Up to 96 % efficient
- Oil fired up to 80% efficient
- Solar heat up to - infinity efficient
- Water to water heat pump (heat multiplier) up to 350 % efficient
- Direct resistance electric (Water Heater) - with off peak power - up to 99 % efficient
- Wood stove with hydronic pick-up
- Waste heat from industrial process
- Waste heat from incineration
- Air to water heat pump (in warmer climates)
- Corn burning stove (with water heat exchanger)

Heat Source less than 130° F

Suitable for: Heavyweight construction, ground slab construction, suspended concrete flooring, or tile flooring.

Depending on the region, the most cost effective are:

- Solar Panels
- Heat Pump,
- Natural gas
- Propane

Heat Source less than 160° F

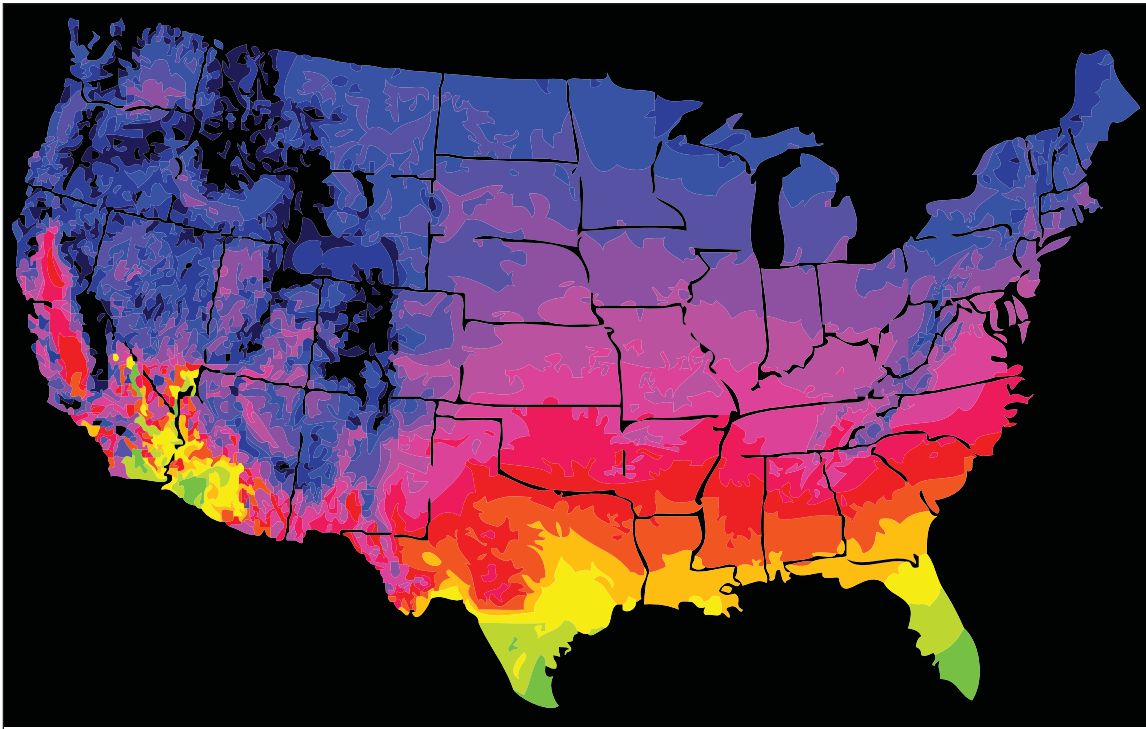
Suitable for: Lightweight construction, vinyl floor, or carpeted floor.

Natural Gas or LP Gas - Features should include the following description:

- Heat source should transfer the heat inside the water tank for high efficiency heat transfer.
- Heat source should be a condensing design to operate at low temperature and at a maximum efficiency.
- Sealed combustion air intake and exhaust should be piped for max. efficiency to avoid oxygen consumed from inside the dwelling.

Other heat sources may be used, please consult your local heating contractor for availability.

Determining Tube Spacing



A degree day is the average temperature below (for heating) or above (for cooling) temperature for 24 hr period above or below 65 degrees F.

The Heating / Cooling Degree Days is a value that is monitored in your area by your local weather station and utility power companies. Additional information may be found on your utility bill.

Tubing Spacing	Tubing Length ()' = Sq. foot area
8"	()' × 1.5 = Tubing Length
12"	()' × 1 = Tubing Length

1. Select your geographical area.
2. Select tubing spacing for area.
3. Calculate tubing length using corresponding formula.

Basic Tools Recommended

- Decoiler Stand WFM-9940
- Decoiler Wheel WFM-9956
- Tubing Cutter WFR-TC1
- Wire Twister WFR-9006
- Air Compressor - 1/2 Hp 100 Psi WFR-9212
- Air Compressor - 1/4 Hp 100 Psi WFR-9112
- Air Hose with quick disconnect couplings
- Air Stapler - Bostitch WFR-1500
- Extension Cord - 120 Volt Purchase Locally
- Angle Drill- 3/8" Chuck WFR-9675
- Fill / Transfer Pump Kit WFM-9300
- Basic Hand Tools
- Flashlight
- Level
- Holding Bucket
- Hose / Faucet Adaptor

Basic Supplies Recommended

- Poly Sheets - To Protect Area WFR-5206
- Spare Couplings 5/8 - 7/8" WFR-1455 & WFR-1477
- Wall Anchors
- Cable Ties
- Lift Clips WFM-5105-C
- Stample Tube Clamps WFM-5050-C & WFM-5070-C
- Staples - 5/8" Long 1/4" Crown WFR-9625
 - See Section 2, page 5
- Booster Pump Kit WFM-9300
 - See Section 4, page 4