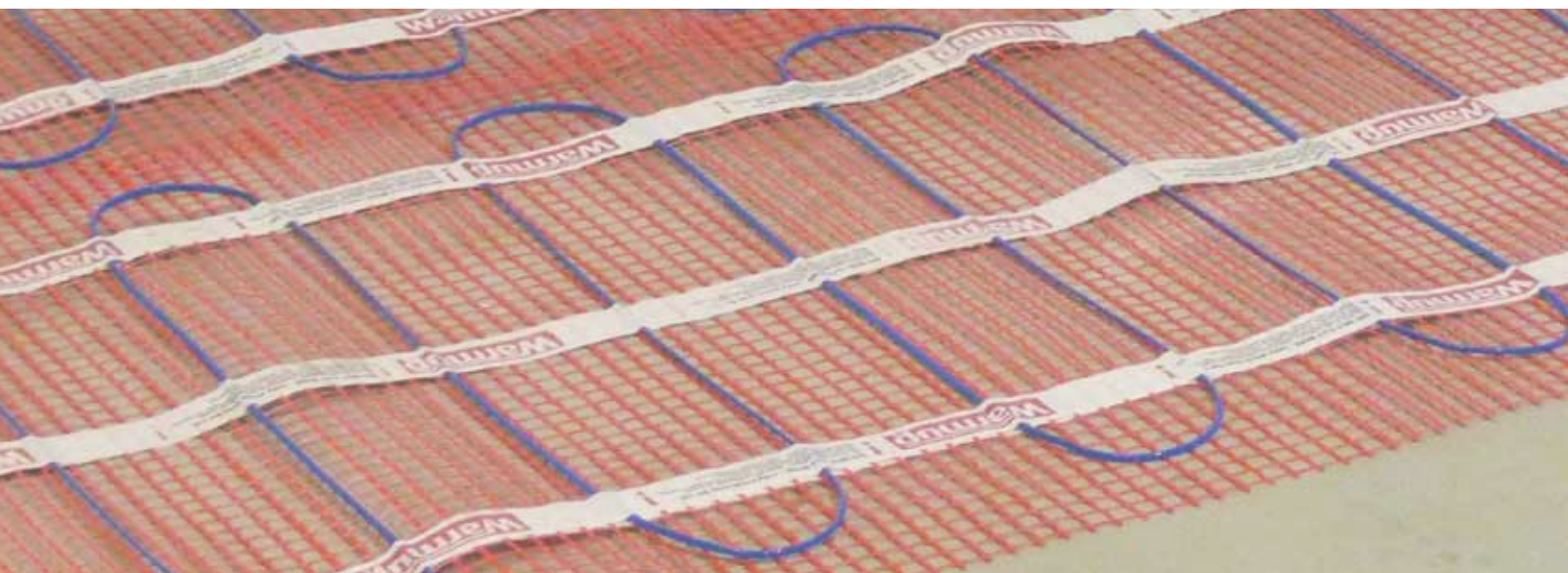


## HYDRONIC FLOOR HEATING VS ELECTRIC FLOOR HEATING Case study and comparison sheet



### CONTACT US

WARMUP INC.  
52 Federal Road, Unit 1F, Danbury, Connecticut, CT 06810  
Tel 1-888-927-6333 - Fax: 1-888-927-4721

us@warmup.com  
warmup.com

10 Kingsbridge Garden Circle, Suite 704, Mississauga, L5R 3K6 Ontario  
Tel 905-990-2075 - Fax 905-990-1732

ca@warmup.com  
www.warmup.ca

### Quick Facts:

**Location:**  
Washington state,  
USA

**Client:**  
Mr & Mrs H Nesbitt

**Nature of Project:**  
Residential

**About the client:**  
Mr & Mrs Nesbitt replaced and upgraded their original hydronic heating system with Warmup carbon panels under laminate floating floors.

#### System specifications:

- 12W/sqft heating panels
- 3/8" (10mm) thick insulation boards,
- Warmup® DUALUDG-4999 thermostats for zoning throughout the home.

Warmup is the only electric in floor heating company to have products accredited by all of these leading institutions:



UK TRADE & INVESTMENT  
Exceptional Manufacturer of the Year  
London Passport to Export Awards 2007

## Warmup® chosen to replace hydronic underfloor heating for custom-built log home



### The Challenge

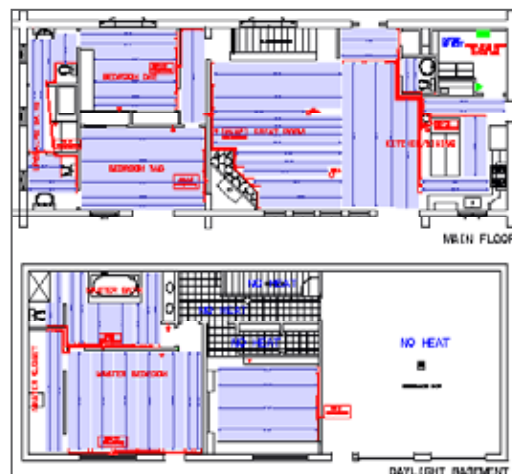
When this unique 2-story custom-built log home was originally constructed, the owners laid tiled floors over a hydronic underfloor heating system, fueled by a propane boiler. Many years later and after considerable research, the owners decided to modernize and update their heating system and replace the old hydronic system with electric underfloor heating under laminate floating floors.

### The Solution

After researching the marketplace thoroughly, the owners decided to purchase a Warmup® system over all the other competitors for its affordable, quality products. Warmup's west-coast sales representative recommended their state-of-the-art carbon panel system for comfortable, even heat distribution throughout the entire house. They offered professional support from quotation through to guidance on installation. Warmup® custom-cut carbon panels were chosen and laid onto thick insulation boards on the lower level of the home to maximize the system's efficiency. Warmup's easy-to-program thermostats offer zoning control for improved energy efficiency.

### The Result

The carbon panels provide sole-source heating throughout the 3-bedroom home. The happy owners installed the panels themselves, with assistance from a customized Warmup layout and Warmup's 24/7/365 technical helpline.



Warmup provides a free layout service, regardless of project size.

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### Products Used

#### WARMUP® Carbon Heaters

The Warmup® Carbon Heaters are perfect for heating laminate and engineered wood floors in lounges, bedrooms and more. The custom-cut panels are ideal for even heat distribution under engineered wood and laminate flooring. At less than 1/16" (0.4mm) thick, the flat carbon film won't raise floor levels. It is available in 12" and 36" widths to ensure complete area coverage.



#### Technical data:

- Operating voltage 120V and 240V
- Maximum Temperature: 82°F / 27.8°C
- Output rating: 12W/sq ft
- Element widths: 12" and 36" (300mm & 900mm)
- Thickness: less than 1/16" (<0.4mm)
- Connection leads: 12 ft long
- Cold tail connector: tri-rated 0.75mm
- Approvals: ETL and UL
- 30 Year Warranty & SafetyNet™ Installation Guarantee



#### WARMUP® Insulation Boards

Using Warmup® Insulation Boards with underfloor heating can lower your running costs by as much as 50% while reducing your carbon footprint. In fact, they can pay for themselves in as little as 2 and a half years.

#### Technical data:

- Board Dimensions: 2' x 4' (600mm x 1250mm)
- Board Thicknesses: 3/8" (10mm)
- Able to withstand a load of 30 tons per square meter
- R Values (2.1 h·ft²·°F): 2.1
- Water Absorption (Capillary): Nil
- Compressive strength: 6144 lb/ft²
- High soundproofing properties
- No primer required when used in conjunction with underfloor heating



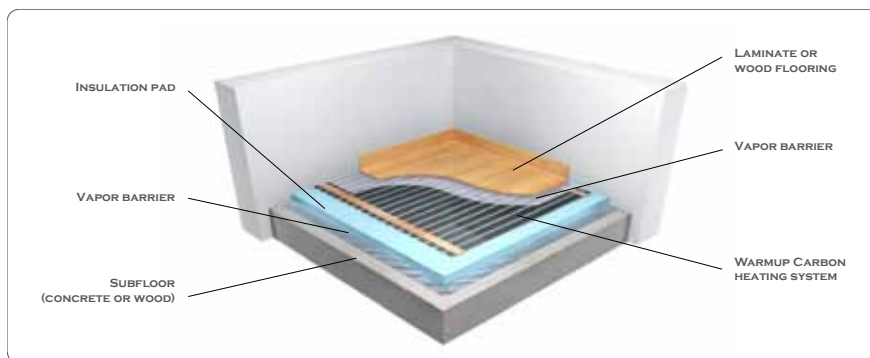
#### WARMUP® DUALUDG-4999 programmable thermostat

The Warmup® DUALUDG digital thermostat is so easy to program, there is hardly any need to read the instruction booklet! The built-in Class A GFCI makes it ideal for wetrooms.

#### Technical data:

- Supply voltage: 120V - 240V
- Output relay: 15A maximum (resistive load):
- 3 sensor settings: Ambient; Floor probe; Ambient & floor
- Heater Maximum Temperature: 104°F/40°C
- Size: 4.8"H x 3.0"W x 1.0"D
- GFCI included with test light
- Clock function: 4-events program/7 days
- Monitors energy consumption
- Easy to read back-lit digital display
- Floor probe sensor ensures precise floor temperature
- Battery-free backup
- Approvals: c-UL-us
- 3 Year Warranty

### Product Application



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## Points of comparison between Warmup in floor electric heating systems and typical hydronic (water-based) heating solutions:

Comparison points	Warmup electric floor heating systems	Hydronic floor heating solutions
Planning	<ul style="list-style-type: none"> <li>Simple and easy</li> <li>Suitable for every type of project: remodeling, renovation or new build</li> </ul>	<ul style="list-style-type: none"> <li>Complex to implement in renovation and remodeling projects</li> <li>Requires a mechanical room and an engineer to plan the installation well in advance</li> </ul>
Performance / efficiency	<ul style="list-style-type: none"> <li>Even heat distribution: no heat loss</li> <li>Easy temperature control and regulation with a thermostat</li> <li>No freezing cables in cold environments</li> </ul>	<ul style="list-style-type: none"> <li>Heat losses experienced from the heat source to the loops</li> <li>Temperature needs to be adjusted with different pumps and valves</li> <li>Needs a special mixture to prevent pipe freezing</li> </ul>
Installation	<ul style="list-style-type: none"> <li>Quick and simple: can be done in a few hours by a single installer</li> <li>Does not raise floor levels: we have the thinnest wires in the industry</li> </ul>	<ul style="list-style-type: none"> <li>Complicated: typically require many work days with the help of engineers and contractors</li> <li>Raises floor levels</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>Zero maintenance</li> <li>No moving or separate parts</li> <li>Defects and failures are easy to find with repair kit</li> </ul>	<ul style="list-style-type: none"> <li>Yearly maintenance necessary</li> <li>Several mechanical parts to service and/or replace</li> <li>Leaks are usually very difficult to locate</li> </ul>
Warranty	<ul style="list-style-type: none"> <li>Only one warranty as there is only one part: the cable</li> </ul>	<ul style="list-style-type: none"> <li>Different warranties from different manufacturers: different parts</li> </ul>

When compared to hydronic floor heating solutions, the main word to define Warmup electric radiant floor heating systems is **SIMPLICITY**.

Warmup floor heating systems are simple to design, install and maintain: less contractors and suppliers involved, no mechanical complications, high efficiency solution, zero maintenance.

In terms of outdoor applications (roofs and gutters, pipes, driveways, ramps,...), Warmup electric heating solutions have many advantages as stated above and actually have features not available with hydronic solutions, such as the self-regulating cable.

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