

When I built my place, I decided on an FPSF Foundation with Radiant Heating. My own system uses 4" HDXPS foam as opposed to the minimum required for this region which is 2".

My system has 7/8" PEX within the concrete.

A Temperature Sensor is centered inside the floor (in a PEX sleeve). I use a dedicated Takagi TH3M LPG Fuelled On-Demand Water Heater for this because I use Hercules® Cryo-Tek™ - 100 Antifreeze in the system.

<https://www.oatey.com/products/hercules-cryotek--100-antifreeze-171603561>

System designed and material provided by as a "Complete Kit" including the control board with pump, pressure tank, electronics & valves are all premounted & pressure tested.

<https://www.radiantcompany.com/> out of Vermont.

Location: North Eastern Ontario Canada, near Algonquin Park.

I keep my floor set to 25°C/77°F. The system runs 2 to 3 times a day in the really cold, usually for two hours at a time. Everything in the house is always warm, with no cold spots. Even the bed is warm.

NOTES:

I use a dedicated heating system with anti-freeze because IF the system shuts down for any reason it will not freeze up and potentially split the pipes or even crack the concrete.

It is possible to have a Radiant System that also serves Hot Water but this could potentially freeze in the event of a failure. This is not generally recommended in climates where this could occur. There have been advances in this area since I bought & installed my system.

On average, it takes 1 hour of heating to raise slab temp 1-degree celsius. The slab will retain & release that over a few hours.

SPECIAL NOTE:

My home is Hyper Insulated using more or less DIY'ed SIP construction. Walls have 5-1/2" thick HDEPS-II Foam between studs, the roof has 7-1/2" of PolyISO between the rafters. Heat loss in winter & heat gain in summer is MINIMAL compared to other constructions. This has a direct effect on the effectiveness & efficiency of radiant heating and temperature retention.

We have many Cabineers up here with Radiant Systems.. none of us geezers like the cold LOL. The weekenders & part-timers that use their places in winter have nailed the process pretty well.

- In Residence settings are whatever they want that is comfy for them.

- Out of Residence setting, most everyone does the same. Lowered temp to 5°C/41°F to maintain an above frost level temp for internal stuff (water pipes etc). Some have remote connectivity, so when they are coming up, they connect from the phone and up the thermostat to "Normal" so by the time they get there it's all toasty.

- * One fellah has Alexa setup to do that - dunno how but nifty.

[b]Remember[/b] If the place is subject to freezing temps, it is "foolish & risky" to use a Water Based radiant system, it only takes one freezing event to ruin it all.

The RadiantCompany has a LOT of literature & several Videos about their systems and various configurations.

- * They can do the basic design & schematics as part of their service and work out the details.

- * They use on North American & European Components (Like Grundfos pumps) and so on, ALL Top Quality High-Grade material & parts.

- * Their prices are EXCELLENT and really cannot be beaten.

- * Their support & service is also OUTSTANDING ! and I mean it, these folks go Above & Beyond and could teach Quality Customer Service to MANY companies.

In Closing. I also have a Woodstove within my place which can turn the house into a Sauna within an hour. The TEMP Sensor inside the concrete slab Registers ONLY the Slab Temp which is the real regulator. Air temps are too variable and inappropriate for a slab system. Many people do NOT realize this factor and end up disappointed with Radiant. Once the Slab is at "saturated mass temp" everything picks up the temp like internal walls and even the furniture, then you can set the slab temps to meet the air

temps you desire. That usually means the Slab Temp will be 3-6 degrees (celsius) warmer to attain the desired air temp.

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38 Case in point. My slab is at 27.5°C as it just finished a heating cycle. Ambient Air
Temp inside house is 22.5°C. Outside temp at this moment is -10°C.

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40 Hope it Helps, Good Luck.

41 Steve

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43 100% Offgrid, Solar Powered and lovin it.