FREQUENTLY ASKED QUESTIONS

– TOPIC INDEX –

LEGALETT®

FREQUENTLY ASKED QUESTIONS

TOPIC #1: ELECTRIC or WATER COIL UNIT ?

Q: I have MCS (Multiple Chemical Sensitivities), and I am concerned with what type of heating to use? Gas or electricity?
Electricity is cleaner for me, but more expensive than Gas. Has anybody ever done a cost comparison between Gas and Electricity? How much more would it cost to heat the same house with electricity over gas?

A: The cost difference between Gas and Electricity for conventional forced air heating systems can be found at the following link:
http://www.uniongas.com/residential/naturalgasproducts/heating/costcomp.asp

With Legalett Air Heated Floors you will reduce the energy requirements of your home by approx. 15-20% when compared to conventional Forced Air Systems, since the average room temperature can be reduced while maintaining the same level of comfort.

In Ontario, Hydro One will be installing Smart Meters before the end of 2010, which will enable you to purchase electricity at off peak rates.

For frequently asked questions on Smart Meters in Ontario go to -

http://www.oeb.gov.on.ca/OEB/Industry/Regulatory+Proceedings/Policy+Initiatives+and+Consultations/Smart+Metering+Initiative+(SMI)/Smart+Metering+Initiative+(SMI)

Q: You have two heating units available, the 5200E & the 5200W. We would like to know the benefit of each application.

A: We have an Electric heater and a Water Coil heater. The Water Coil unit can be used when your heating source is oil, propane, natural gas, solar-boosted, wood or geothermal. In the case of oil, propane or natural gas, a domestic hot water heater is all that is needed. In some areas where 2 tier electric rates are available the Electric unit maybe more attractive.

Q: I recognize that all forms of fuel are expensive, but I'm not sure how using an Electric heating unit (or units) could possibly be very efficient, and the addition of a boiler in order to install the water coil unit would add considerably to the initial cost.

The Electric unit would obviously be the better choice if it truly isn't too costly to operate, would it not?

A: Electric is the most efficient method of heating since it is 100% efficient. That does not mean it is the least expensive.

In some locations utilities provide multi tier rate structures for electricity, because of this we see a greater demand for electrical units for the reason you suggest (less expensive to install). Bear in mind that the thermostats we supply have built in timers, so when the demand for heat is present, the heating unit will only come on during off peak rates. The water coil unit requires a hot water heater and additional costs for a pump and piping. On a small home, the additional costs of a fuel-fired hot water heater may take many years to pay back.

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FREQUENTLY ASKED QUESTIONS

TOPIC #2: Hot Water Supplies

Q: Do you know if there is a tankless hot water system available that will handle both domestic hot water & heating water load?

A: All tankless hot water heaters are well sized for domestic but could be oversized for Legalett. Our 3kW heater when zoned, could demand 1.5 kW only or about 150 L/hour at 60°C with a return water temperature of 48°C. - this is much less than domestic hot water demand.
Please note that domestic hot water supply would take precedence over heating requirements. When choosing a tankless heater ask about the minimum firing rate or turn down ratio to make sure the unit is not oversized and cycling excessively.

Q: How far can the boiler be away from your heat-exchangers?

A: Boiler can be as far as you want - there is no restriction that we can think of outside of hydraulic issues with pressure drop and line sizing.

Q: I would like to learn more about heating sources like oil burn boilers or wood fired boilers, can that be use with your system.

A: Any energy source can be used. We have an electric or water coil heater.
The water coil heater can be supplied with hot water from any heat source including geothermal, solar, hot water heater, boiler (fired on natural gas, propane, or oil).
We have some installations where we have run piping through a masonry fire place to pick up heat and distribute to the building. http://www.legalett.ca/0554.pdf

FREQUENTLY ASKED QUESTIONS

TOPIC #3: Hydronic or Air Heating System?

Q: I have been looking at water heated radiant floors and seeing your air system I am interested in a BTU comparison of the two systems. Please provide me with any technical info so I can compare the two systems.

A: Our standard supply is 10 Btu per hour per square foot - this should be enough for most homes. Our system is a low intensity system - which means we trickle energy into the slab - the slab acts as a large radiator and is capable of delivering a huge amount of energy into the building as required. We maintain the system performance at a level where the floor temperatures are comfortable.

If you want to compare Hydronic with Legalett please see the followings links http://www.legalett.ca/0518.pdf and http://www.legalett.ca/0520.pdf

Q: We live in a desert climate. We would like to use solar panels to help reduce heating and hot water costs. I understand you design systems using air rather than water. I would like your comments regarding using water or coolant of some type.

A: Legalett uses air to heat the floor. However, to heat the air we use a water or electric coil heater. If you are considering using solar heat to supplement your hot water heating we would be glad to work with your solar panel supplier to maximize the efficiency of the system for Legalett. A Legalett water coil heater would typically need say 55-60 degree C water inlet and the return temperature would be about 8-12 degrees lower. In a solar applications we would be most interested in the temperature and quantity of water that can be heated by the solar panel. If there is a temperature limitation - we would need to know so that we can maximize the usefulness of the system.

Q: Would operation costs be comparable to hydronic in floor heat.

A: Operation costs would be better than typical hydronic since 6 inches of EPS is used under the slab as compared to 3 inches of EPS, as per the building code. Construction costs would also be reduced due to the simplicity of assembly of the system.

Q: Why are hydronic floors warmer than Legalett floors?

A: All else being equal, the floors would be the same temperature for the given heat load.

However, many hydronically heated homes are not designed with a goal of energy efficiency, so they tend to be over-ventilated, and/or use air circulation systems with ducting in the attic that are not well insulated, which suck energy out of the living space. This over-ventilation and/or air circulation losses into the attic require a higher rate of heating from the floor to compensate for higher ventilation and heat losses, and since the rate of heating (heat flux) is proportional to the temperature of the floor, the floor temperature must be higher in such a home. Since hydronic heating systems are a much higher intensity heating system compared to Legalett, this extra energy consumption goes un-noticed and the floors simply run at a higher temperature. This of course, leads to a much higher heating cost, because the energy is wasted. Essentially it's like you are cooling (ventilation & circulation losses) and heating (from floor) the same space at the same time.

Legalett systems, on the other hand, tend to go into homes designed with a much higher energy efficiency goal and thus require a lower floor temperature to maintain the same level of comfort heating, as less is wasted by poorly designed ventilation and circulation systems. If such a wasteful ventilation/circulation system is installed in a Legalett home, it is quickly noticed as an energy-wasting mistake.

FREQUENTLY ASKED QUESTIONS

TOPIC #4: LEGALETT Suspended Floor Systems

Q: Can your system be used on the second floor?

A: Yes, we have a 2 inch system that is perfectly suited for second floor applications. Please refer to product data sheet - http://www.legalett.ca/0511.pdf

Q: I really like the concept of your system. Presently we are using radiant hot water, which is good but expensive. Planning next home and am wondering if your system can be configured into an above ground slab on steel beams atop of pilings? Site is steep with bedrock just below surface.

A: Yes, we have suspended floor systems. Typically we use either Insul-Deck or Hambro structural systems for suspended floor pours. In your situation it seems that you would most likely use Insul-Deck as the stay in place form work (also to provide insulation under the slab). As it turns out we are currently working on a home in Ontario that is on steel columns with Insul-Deck.

Q: What heat do you recommend for the second floor?

A: This is really the home owner's choice. We have a 2 inch system for suspended floors that work well with Hambro or Insul-Deck (or any other suspended slab structural system). If you are considering wood frame you could consider a High Velocity System for heating, cooling and air exchange. Legalett can work with any system. Please visit our complimentary systems at http://www.legalett.ca/Technic.htm.

Q: I have a second floor over part of the house. What is the best way to heat that upper level?

A: Heating a 2nd storey can be done using the Legalett suspended floor system with Hambro or an Insul-Deck type of product - http://www.legalett.ca/0511.pdf or a more conventional construction method such as the Hi-V system http://www.hi-velocity.com/north_america.html or simply add a water coil and air mover to your heat recovery ventilation system. There are other alternatives such as water or electric baseboards.

Q: Can I build 2 stories of ICF with your floor system?

A: Yes, Legalett adapts very well to ICF - up to 3 stories is no problem with our standard 8 inch slab/ 4 inch pipe design.

FREQUENTLY ASKED QUESTIONS

TOPIC #5: LEGALETT Heater Box Location

Q: **The problem now is that we don't know where to put the heating system on my floor plans. Can I do it with one furnace or do I need two of them? The garage will be heated as well.**

A: **One of our heaters would cover approx. 1400-1700 sq. ft. Legalett would locate the position of the heater box (s) during the design phase unless you have a preference. We like to locate the box in a central location - in a closet or under a stairway if possible although not required.**

Q: **From your website we are sold on your concept but would like a little more detail on the furnace requirements and placement etc.**

A: **We have electric furnace and a water coil furnace. The water furnace can be supplied with hot water from a hot water heater, boiler, etc.**

It is a simple installation http://www.legalett.ca/Schematics_Water_Coil_Install.pdf

The location of the heater box in the floor is also straightforward.
Ideally it should be located in a central location (but not necessary), it can even go in the middle of a room since the top access cover can be finished to match the floor covering.
However, we suggest a closet location for ease of installation and access.

FREQUENTLY ASKED QUESTIONS

TOPIC #6: LEGALETT 2" & 4" Closed Loop Piping

Q: I noticed that some of your homes have smaller plastic piping while others have metal ducting. Would you have some written material with more detail that could be mailed to us that we can study and plan with accordingly ?

A: We have a 2 inch pipe system that is placed in a 5 inch slab or an 4 inch pipe system that is placed in an 8 inch slab. The 4 inch system is a little easier to install but the 2 inch saves 3 inches of concrete. The 8 inch provides for more thermal mass and we would use it more for commercial/industrial and larger home applications. However, allot of our installers prefer the 4/8 inch system for it simplicity. Use this link to download the information you are looking for.
http://www.legalett.ca/Downloads.htm

Q: I am intrigued by Legalett's use of coiled ducting, is this for structural compression loads ?

A: Our 4 inch piping system uses a spiral wound pipe for two reasons - first there is improved heat transfer since air turbulence is increased, second structurally through the pour the pipe maintain its integrity.

Q: How about running pipes under the floor and out open air ducts rather than closed loop?

A: Legalett is a closed loop system. The air you breathe is separate from the air you heat with. When running an open loop system with ducting through a slab, you would need to be concerned about condensation, this scenario would require a trap at each duct to remove any collected water from the loop, otherwise the ducting would eventually rust and the air quality would become a health concern.

Q: Does the fan in the furnace box work with outside air brought in ? (which would need to be piped in during layout)

A: The heater is completely enclosed and re-circulates air through-out the slab. It is a closed system, you do not breathe the air you heat with.
We have, in a previous project, piped a loop or two through a fireplace hearth to pick up heat when burning with wood as a supplementary heat source, but yet it remains a closed loop system.

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FREQUENTLY ASKED QUESTIONS

TOPIC #7: Heat Output

Q: How is warm air produced to heat the floors?

A: The electric inserts use electric coils to heat the air, whereas the water coil units use air/water heat exchangers to heat the air. For the water coil units a standard hot water heater/boiler would suffice and a circulating pump would be needed (grundfos) only - Please refer to http://www.legalett.ca/Schematics_Water_Coil_Install.pdf

Q: Does the slab need to be heated all winter to prevent damage from heaving?

A: Yes, the slab does have to be heated all year around to prevent frost heave. If you are using a cottage for a week or two in the winter, one can set the temperature lower when not there, but it will take a couple of days for the temperature to rise to comfort levels on arrival. If you lower the temperature when not in use to say 15°C and then increase to say 19°C when in use - you would arrive at a comfortable temperature over 24 hours. Occupancy and use of building should be know at the design stage. If you are not planning to use the building over the winter then the slab design would change. Legalett also supplies an unheated slab for heated buildings and an unheated slab for unheated buildings, designed for cottages that will freeze.

Q: Can you use Legalett for cooling?

A: The simple answer is no. Please refer to http://www.legalett.ca/Cooling.htm

Q: Do you have examples of 'typical' heating costs for new homes built/heating with your system utilizing the electric units?

A: It is very difficult to provide heating costs for electric units - we have some data for water coil units in assembly buildings. Electricity is used for cooking, hot water heating (in some cases), lights, etc. - to monitor electric heating costs would require a separate meter on the heating unit alone - and if we had this data - what could we compare it to? - We would need an identical home- with the same occupants with the same habits during the same time period and weather. Please refer to http://www.legalett.ca/1512.pdf for a natural gas based residence - the owner was very keen on recording energy costs in this case.

We can say this: With a Legalett home - the building has a completely insulated envelope - reducing energy losses to the ground. Because of temperature stratification - the air temperature at the ceiling is about 4-5°C lower than with conventional forced air heating resulting in a lower delta T across the ceiling and walls again reducing energy losses. When your feet are warm the average temperature in the home can be reduced by 2-3°C again saving energy. Now if we put this together in an average year say in Ottawa, Canada this would amount to about 15% minimum energy savings over the heating season.

Please refer to Energy Savings data sheet http://www.legalett.ca/0542.pdf

FREQUENTLY ASKED QUESTIONS

TOPIC #7: Heat Output (continued)

Q: I have plans to build an energy efficient and well insulated, (R20 walls with additional foam sheeting on the exterior & R50 in the attic, etc..), small retirement home (1380 sq ft).

Would one heating unit typically be sufficient to heat a small home the size of mine or would I need two? Do you design the system entirely using my house plans or do I need someone else to first determine my heating requirements?

A: Our 4000 series heating units cover approx. 1400-1700 sq. ft. at 10 Btu per hour per square foot. We basically sell 10 Btu's per hour per sq. ft. or more if the customer requests it. We check the heating requirements for the building to make sure the heating demand would be met with the installed heater for conduction losses and a 0.12 Air Changes per hour allowance for infiltration (this corresponds to a well built home - R2000 quality). We do not allow for any heat losses due to ventilation and for this reason we do not take responsibility for the total building energy requirements. Building codes often require make-up air or exhaust air etc. usually through HRV's . The building mechanical designer should take a look at the total building heating requirements including ventilation. Touch up heat is required for the ventilation air. Please refer to the HRV/ERV Operation with LEGALETT data sheet - http://www.legalett.ca/0545.pdf

Q: Since the system basically heats by means of thermal mass, which takes considerable time to heat up, how well can it handle the abrupt drops in temperature, which are increasingly common anymore in the winter? All homes, no matter how well insulated, have some heat loss and are subject to the outside temperatures. Having an electric heating unit running non-stop for a day or two, (or more), in order to 'catch up', and using considerable energy in the process is one thing, but being chilly and uncomfortable in the meantime would be extremely frustrating not to mention inefficient and costly. Especially when the temperature is likely to rise just as abruptly again afterwards, and then do it all over again.

A: When using a radiant heated floor coupled with the thermal mass that a Legalett foundation will give you - you will not be subject to drafts or temperatures swings in your home. When you open a door and get a blast of cold air coming into the house - you will feel cold but when that door is closed instantly you will feel warm again because the floor will radiant the required energy to you. The outside temperature may vary considerably - the slab will only impart the energy that is needed to maintain comfort - it will not over heat and it will not drop in temperature significantly to cause you to notice -hence the benefit of radiant heat. We do not recommend varying the thermostat once comfort level has been attained whether the temperature outside changes or not. The heat recovery ability of the system is sized for extremes so the indoor temperature will not vary outside of the control range. Legalett is a low intensity heating system - which means we trickle energy into the floor slowly. You would not normally notice that the heater is running due to the quiet operation, but when the heater does come on it will stay on for a few hours to replenish the energy in the slab.

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FREQUENTLY ASKED QUESTIONS

TOPIC #7: Heat Output (continued)

Q: Would I be able to use a woodstove as a secondary heat source in that case as well as to offset some of the cost of heating with electricity? The home that I've been in that is built on a typical unheated but insulated slab has surprisingly warm floors and is heated a considerable amount of the time with just a woodstove.

A: Yes, wood can be used as a secondary heat source - we have in the past run our piping up into a masonry hearth to extract heat from the fireplace and deliver it to the floor slab - if this is what you would like to do just let us know and we will accommodate. The problem with heating with wood is temperature control and most times the building becomes warmer then desired.

Q: Would an attached garage require heat ducts in the floor also?

A: We design and supply both heated and non-heated slabs on grade (frost protected shallow foundations). You would have your choice whether to heat the garage slab or not.

Q: If there were three zones and water heat exchangers were used in the in floor heating units, would there be one circulation pump or three.

A: Each of our heaters have 2 zones or less. Zoning is determined at the design phase. We would recommend one circulation pump for 1 or multiple heaters for simplicity.
http://www.legalett.ca/Schematics_Water_Coil_Install.pdf **and** http://www.legalett.ca/Schematics_Water_Supply_Boiler_HeatPump.pdf

Q: Do you design and size the system to different geographical conditions? Or do you have some software to design?

A: Yes, we design the system to the weather conditions for the building site. We follow ISO and ASCE guidelines for Frost Protected Shallow Foundations. We have software programs that model the frost line for different soil conditions. The science is such that worst case scenarios are used to reduce the required information from site. We perform an energy analysis for the building as well as determine the air piping configuration for zoning and heat load. Each system is custom designed.

Q: Some of your pages say to use the construction heater the same day as pouring, during cold weather, others say the day after.

A: The construction heater can be used as quickly as you can get onto the slab after the pour or if you install a construction heater before the pour it can be used during the pour.
We do not recommend one way or another since the use of the heater in this situation is strictly to benefit the builder when doing cold weather pours.

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FREQUENTLY ASKED QUESTIONS

TOPIC #7: Heat Output (continued)

Q: How do you address the issue of recovery time for the slab if the power goes off for 4 or 5 days? Last year we had a 4 day power outage and long outages are common.

A: At design our heater would recover 2-3 degrees per day once the power came back on and faster depending on heat load. With our 8 inch slab during the ice storm of 1998 we had homes without power for up to 11 days. The inside temperature went from say 20 degrees C to say 14 degrees C.

During an extended power outage the slab acts as a heat source and sink. Because of the thermal mass it will absorb energy during the day and give off energy at night. Also, the heat flux from the slab to the building fluctuates night and day and decreases as the room temperature decreases. ---- It is not an easy answer.

So how long will someone be comfortable?

The Heat Storage Capacity of our 8 inch Slab: 0.44 MJ/(C-m2) - at design (maximum heat flux) the temperature of the slab will drop 1 C over 4 hours. This does not allow for solar gain.

Realistically, the slab will gain or lose less energy during the day and only require the maximum heat flux to the room for very short durations. So in the peak of winter in say Ottawa - based on 30 year climate norms for January - the slab temperature would decrease approximately 2-3 C per day when the inside temperature is 20 C and less as the inside temperature decreases. So we go back to our experience from the ice storm and can say that we would expect the inside temperature to drop about 1-2 C per day over an extended power outages.

Q: According to Legalett Product Data Sheet 0528 (Electric Heating unit), indication is such that the airflow rates include a greater than symbol, are these maximum design rates?

A: Air flows are approx. and in most cases are greater than specified. Design Air flow is shown on the PDS - the actual Air flow can be different based on heater coverage, piping design and design heat flux to the building. We basically design for 10 Btu's per square foot per hour. This can be done at different air flow rates and different water temperatures for the 5200W. Our 5200W can produce considerably more than 5000 Watts. Our 5200E is limited to 5000 Watts. We typically try to keep the same coverage with our heaters - approx. 1600 square feet so that the water coil and the electric coil heater are interchangeable (if someone decided to change at a future date). With a coverage of say 1400 square feet the air flow rates are higher typically than stated air flows.

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FREQUENTLY ASKED QUESTIONS

TOPIC #8: Legalett System for Additions

Q: We are planning to build a 3 season sunroom, 14' x 25'. Can we use the Legalett system instead of a wood deck on piers? The finished floor will be approx. 12 to 16 inches above grade as opposed to being at grade level as your illustrations show. It would appear that the edge treatment would all be above grade.

A: Yes, Legalett can and has been used for many home additions including sunrooms.

If the elevation is higher we would suggest to bring in clear stone (after removal of the topsoil) to set the slab EPS on. Our standard edge element is 14 inches (6 inches of EPS and 8 inches of concrete) and we would like it buried at least 6 inches. Depending on the heating requirements for the sunroom or if you decide on a unheated slab we would possibly skirt the room with EPS and would want the skirting to be buried also. Some landscaping may be required.

Q: Do you have any products for retrofitting an existing home for radiant floor heating, furnace or other energy savers?

A: Legalett is not suited for retrofitting existing buildings, unless existing floors can be excavated.

The Legalett system is suitable for;

- **New construction and**
- **Additions to existing buildings.**

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FREQUENTLY ASKED QUESTIONS

TOPIC #9: Legalett Representative Locations

Q: **It seems that you do not have any installers close to our location, can we buy directly from Legalett?**

A: **Yes, we can work with you directly - if you install yourself or have your own contractor. In this case we would make arrangements for a pre-pour inspection with a Legalett Representative. In the later case we would train your contractor to become one of our installers in your area.**

FREQUENTLY ASKED QUESTIONS

TOPIC #10: Legalett System and the Building Codes

Q: I am building in South Eastern USA and want to know if your system is to code in the US. Bearing in mind that I shall be building on a slope, will it support a two story ICF wall house?

A: We have supplied our standard slab on grade warm floor system to many states including California, Nevada, Utah, Michigan, Pennsylvania and New York. Our standard slab on grade design requires an engineer's stamp in Canada as well as the USA. We have available an alternate design that is IRC compliant (International Residential Code) which has been adopted by many states and would not require an engineers stamp. However, most customer prefer our standard design because of its' simplicity.

Legalett is very well suited to ICF Construction for 2 or 3 storey homes. We have many back walk-outs on sloped property - Legalett can be designed to suit the location.

Q: Do you have CHMC approval for your system?

A: Yes, back in 1995 we had a CCMC evaluation report that we let lapse in 1998. Our system falls under part 4 of the NBC and OBC, which states that an engineer's stamp is required.

FREQUENTLY ASKED QUESTIONS

TOPIC #11: Legalett System and Geothermal Energy

Q: I live in Saskatchewan - -45 C. winters. Can this system be connected to a Geothermal air heating unit?

**A: Legalett has many systems in cold climates through out Canada and the US.
Yes, we can use/adapt the energy from a geothermal heat pump.**

Q: Can your system connect to any geothermal heat pump system or only to a specific manufacturer? If so which one do you recommend?

**A: We can adapt to any energy source and do not recommend one technology over another.
We simply need at required flow rate at a set temperature.**

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FREQUENTLY ASKED QUESTIONS

TOPIC #12: Building on a Hill or on Uneven Terrain

Q: My building lot (land) is not perfectly horizontal but ia a rather flat outcrop with a slope of about 1 foot per 10 feet, side to side (40 feet). I do not want to blast. Can this slope be leveled with gravel?

A: Yes, legalett has been the system of choice when faced with rock outcrops.

Q: What is the load capacity of your system?

A: The Legalett system is designed for typical edge loading of up to 5000 lbs. per linear foot. Legalett designers/engineers can design up to 3 stories of ICF walls & suspended floors.

Q: Is there any problem with a concrete wall on top of the concrete slab? Your drawings show only a very small setback from the edge of the slab.

A: We provide a complete design for building permitting. Our designs fall under Part 4 of the NBC and are stamped by a P.Eng. with a BCIN. All bearing walls are accounted for during design for our slab on grade system.

Q: Is there a detail of how the slab is used if there are pier requirements or very large concrete support areas?

A: Each structure is custom designed - point loads, large bearing areas and/or piers can be and have been many times incorporated into our designs, depending on the structural requirements.

Q: There is a low area along one side of where I am going to build. The low area is about 4 feet below grade from the surrounding area, which will be back filled. If I backfill with rock, I will have to haul off dirt, otherwise I can push the excess dirt into the low area. Your page says that your system provides the structural integrity to bridge problem soils, and holds up the house. Is this also true if I push 4 feet of dirt into a low area and build on that area as well as on the solid area?

A: Our system has the ability to bridge poor soils and lies very lightly on the ground - the resultant loads are very light - in the area of 1000 psf or lower. However, this does not mean that you should ignore good engineering practices when building. It is important to have a uniform substrate below the slab - either all dirt or all rock with a layer of clear stone levelled when placing the EPS. It is recommended to have a soils engineer provide some assistance to you knowing the loading that legalett requires. Please refer to the Problem Soils data sheet - http://www.legalett.ca/0539.pdf.

Q: I have a high water table and am somewhat confused about building without footings. Could you explain?

A: Legalett is a frost protected shallow foundation system. Our most popular product is our heated slab on grade. We have available non-heated slab on grade, basement and suspended floor systems. High water tables are a nuissance when building with a conventional basement, but are quite suitable when building with the Legalett system.

FREQUENTLY ASKED QUESTIONS

TOPIC #13: Floor Coverings

Q: **We like hardwood floors. What must be done to use your system under hardwood floors? Are some wood flooring materials better than others?**

A: **Yes, many of our customers use hard wood flooring and today with the engineered products available most are very compatible with Legalett.**
Please refer to the following links:

http://www.legalett.ca/0509.pdf
http://www.radiantpanelassociation.org/i4a/pages/index.cfm?pageid=145

Q: **What types of flooring do you recommend over the heated slab? Looks like ceramic tile and hardwood are popular, any others?**

A: **Any floor covering can be used. If you chose an insulative floor covering such as thick carpet with a foam backing or hardwood on sleepers we would like to know about it at the design stage. For further information please click on http://www.legalett.ca/0509.pdf**

FREQUENTLY ASKED QUESTIONS

TOPIC #14: Legalett Services & Warranties

Q: Who backs the warranty? Legalett or installer?

A: Legalett Warranty details can be seen at: http://www.legalett.ca/0515.pdf

Q: Who services the unit should it need to be serviced?

A: A Legalett Service Rep or any licensed electrician or heating contractor can service the unit.

Q: Our uncle had your electric system installed in 1993 & we are inquring as to whether or not service is needed?

A: There is no regular maintenance required. Once a year the cover and heating unit should be exposed and visually inspected.

Q: What is a customer to do if your company goes out of business? Are parts for the heating unit universal or are they only made and sold by your company?

A: This question could apply to any heating supply company. All parts in the Legalett heating unit are universal. Legalett is supplied worldwide. In North America we warehouse complete spare inserts as well as components. After market parts can be purchased through our on-line Parts Catalog. We have units in continuous service for over 20 years.

Q: Do you offer the service of doing a heat loss calculation and duct design for the HRV and/or cooling duct work?

A: Legalett is not a H&V design company. We do not do heat load calculations as part of our supply.

We use our own proprietary software to evaluate transmission and stated infiltration losses, as an internal check only to make sure that the heating system sizing, as chosen by the party who actually does the heat loss, is sufficient. Ventilation and excessive infiltration losses are by others. Ventilation varies from region to region and we do not supply ventilation systems - for this reason we do not do whole-house heat losses. We sell basically 10, 15, or 20 Btu's per square ft. per hour - and perform an internal check for the Legalett heated area to make sure that the system is sized correctly.

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FREQUENTLY ASKED QUESTIONS

TOPIC #15: Ventilation & Building Techniques

Q: The slab heat system does not provide outside air for the required ventilation. How do you provide ventilation for public occupancy buildings and/or residences?

A: The air circulated by the heating unit does not enter the living space. Ventilation air must be provided from a separate ventilation system, especially for commercial or institutional buildings where large volumes of fresh air are required for occupancy loads The Legalett System is typically designed to have a heat output to meet transmission losses and .12 Air Changes per hour for infiltration (R2000 Quality Construction Building).

Heating of ventilation air (ie. ventilation losses) must be done by external ventilation units. The magnitude of energy required to heat the ventilated fresh air in an occupancy building is typically an order of magnitude beyond what is required to provide "comfort" heat. The slab cannot be used to provide the heating of fresh air.

In other words, during periods of non-occupancy, when the ventilation system can be shut down, the Legalett slab will provide the heating needs, along with providing a comfortable warm floor, by matching the transmission heat losses of the building's lower floor. Since the ventilation system is turned off, there are no ventilation losses. During periods of occupancy, the ventilation system has to be turned on, along with its integral heating of the fresh air.

Refer to the following product data sheets for a discussion on HRV operation in Radiant Floor Heated homes;

0533.pdf - Ventilation & Building Techniques

0545.pdf - HRV Operation with Legalett