


Lose Weight, Feel Great & Detoxify

Written by Christopher Kiggins



All infrared saunas use either ceramic, carbon or halogen heaters to produce infrared light to create a deep sweat. The effects of each of the heaters are vastly different, and you'll eventually have to make a choice which is best for you. Let's get into the differences between each heater.

Types of Infrared Heaters

Ceramic Heaters



Remember what a blackbody is? (Hint: It's how much infrared an object can absorb). In order to find the right object to use for an infrared heater, you must look at the molecular components that allow for the greatest amount of heat retention, or infrared absorption.

What the original inventors of infrared saunas realized is that a ceramic compound (ceramic is a naturally occurring mineral that comes from clay) lends itself to different states and shapes. Ceramic clay can be molded when wet, it can be dried to take forms of objects (pottery, bricks for buildings) or used to cook. When you heat it, its electrons start to move which generate heat.

In the infrared sauna environment, ceramic is a good conductor of infrared heat because its blackbody rating is closer to 1.0 (ceramic heaters have .99 emissivity). This is higher than any other mineral or rock. What that means is that ceramic absorbs infrared better than any other object.

Emissivity is defined as an object's effectiveness in emitting energy as thermal radiation. In layman's terms, this means is that emissivity measures how well an object holds infrared energy (or how much it can absorb) so it can then release it as infrared/thermal radiation.

There is a downside using ceramic as an infrared emitter. The problem with ceramic is that *it gets too hot*. The absorption property of ceramic allows for its surface temperature to rise to 350 – 400 degrees°F.

Let's put this into the Wien's Law formula:

$$5268 / (350 \text{ °F} + 460) = 6.44 \text{ microns}$$

This is a good wavelength to raise your core body temperature through absorption into your soft tissue, but it's not the best way to administer infrared heat in the sauna environment.

The problem with this wavelength is that it's too hot (at 350–400°F) to sit 2 inches away from, as you do in an infrared sauna. Additionally, the 6.4 micron wavelength is too short for our bodies to optimally absorb it into our body's water molecules. Our bodies are made up of 60% water. In fact, water is so good at absorbing far infrared (4–1000 microns) that the earth's oceans are heated because the water molecules absorb the Sun's far infrared energy. Our bodies are optimized to absorb far infrared energy.

Therefore, it would be much better if we could find something that got hot enough to heat the body, but also had a longer wavelength of infrared light for proper absorption into our water molecules (with the right balance of comfort to heat).

Carbon Heaters



Twelve years ago there was a significant innovation in the infrared sauna industry: carbon fiber panels. The reason for this was that carbon fiber is more malleable than hardened ceramic and its surface area can be spread out and expanded. It's also cheaper to manufacture a sauna using carbon; *hence, the cheapest infrared saunas are made out of carbon!*

Here's the rationale behind pure carbon heaters: by expanding the total surface area of the infrared heat this would lower the surface temperature and allow for a longer infrared wavelength that can be placed 360° around your body. As we have already established, infrared heat is just invisible light. Therefore, it is

optimal to place as many heaters around you so your body is essentially enveloped in infrared light for maximum absorption.

Now, this happens to be my personal viewpoint—it is better to have a maximum surface area of infrared light surrounding you and why I think carbon heaters led the best companies to think of combination carbon heaters—which have a surface temperature of 190°F. Unfortunately, pure carbon saunas just don't have enough surface temperature to do too much of anything in an infrared sauna environment.

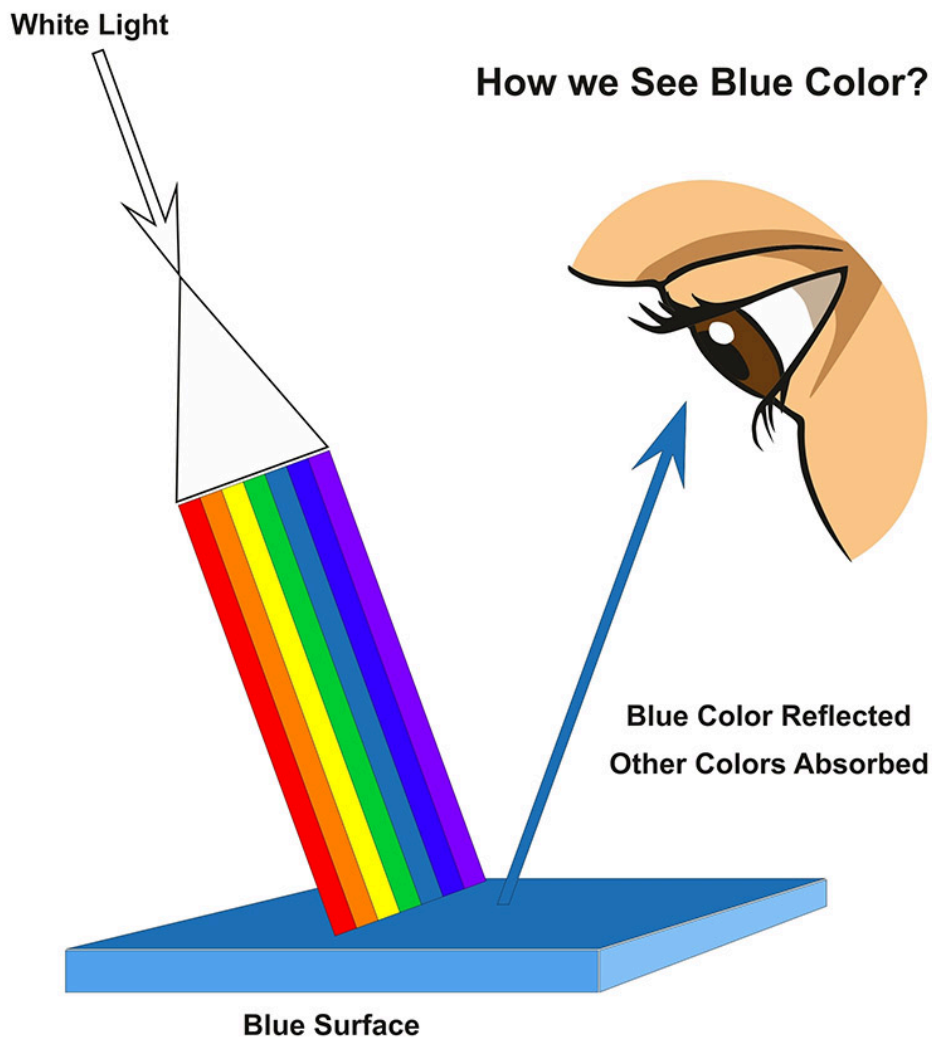
So what's the maximum surface temperature of carbon panels in infrared saunas? About 140 – 150°F. Let's plug that temperature into Wien's Law:

$$5268 / (150 \text{ }^\circ\text{F} + 460) = 8.55 \text{ microns}$$

Carbon fiber panels do have a much longer infrared wavelength than other heaters. Seems better, right? Not necessarily. *Carbon fiber doesn't allow itself to absorb as much infrared as ceramic.* Its blackbody emissivity rating is closer to .94 or .95.

Hypothetically, let's say you were standing in the sun wearing a black shirt, which absorbs 99 percent of the infrared light coming from the sun; whereas a light blue shirt absorbs 86 percent of the infrared light. The black shirt gets much hotter because it absorbs more infrared light. Pretty straightforward.





This is the difference between carbon and ceramic. Carbon simply does not get hot enough in an infrared sauna environment to raise core body temperature on its own as it doesn't absorb as much infrared energy/light.

I want to make a very important point: the difference between an infrared sauna and a traditional sauna is that an infrared sauna relies on the changing of the internal properties of objects to exude heat in the form of thermal radiation. This light is absorbed by your body and your core body temperature rises. As a result, you produce a deep sweat—your body's natural mechanism to cool itself.

Traditional saunas heat the air (and the water in the air), which then heats your skin. If you want hot air, get a traditional sauna. If you want to heat your body, get an infrared sauna.

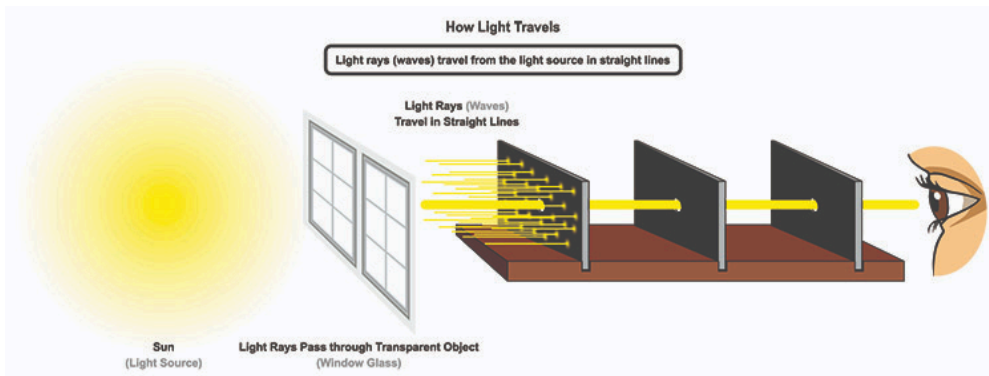
In the same way that traditional saunas do not heat your core body temperature enough to allow for the health benefits they are capable of providing, carbon infrared panels also do not get hot enough to heat your body's core temperature. Hence, both are lacking in the sauna environment.

As a result of the low surface temperature of carbon heaters, low-cost sauna companies have to increase the carbon panel surface area to heat the air above your head to simulate getting a good sweat. Did you ever wonder why cheaper carbon saunas always look the same (with their heaters raised up almost to the ceiling)?



Yes, having enough heater surface space in the sauna can raise the air temperature in the sauna. However, by doing this, it is no longer infra-red light heating your body; but rather hot air convection, the same as traditional saunas. The effect of raising the air temperature to overcompensate for low surface temperatures and underpowered heaters is not the goal of infrared saunas (and is disingenuous if you ask me).

Because infrared energy is actually invisible light, it can be described in the same manner as a flashlight that reflects light in a certain direction: Light from a flashlight travels in a straight line, which is true of invisible light as well. You can think of infra-red panels as giant flashlights reflecting infrared light in a straight line.



The goal is to reflect this light into your body in order for it to be absorbed creating a rise in core body temperature, which is infrared sauna therapy in a nutshell. When carbon panels are positioned above your head, they are effectively reflecting this light into thin air and the infrared energy is wasted. Unfortunately, the person inside the sauna is often fooled as they feel heat because the air temperature will rise.

The debate between ceramic vs. carbon heaters can be summarized in a single sentence:

Ceramic heaters run too hot and carbon heaters don't run hot enough.

I made it my personal mission to find out if there was something in the middle that was hot enough to raise your core temperature while being comfortable enough to sit next to for 30 minutes. It took me years to discover, but I found that very heater.

VantaWave™ Quartz Graphite 190°F Heaters

Eight years ago, when I first started to find out about infrared saunas I quickly realized that just about every infrared sauna company had missed the boat on providing a heater that operated at a comfortable temperature while simultaneously raising your core body temperature.

As we've gone over, the industry standard infrared heaters simply don't cut it (they're either too hot or not hot enough). One day I was in one of the cheaper carbon saunas and something hit me.

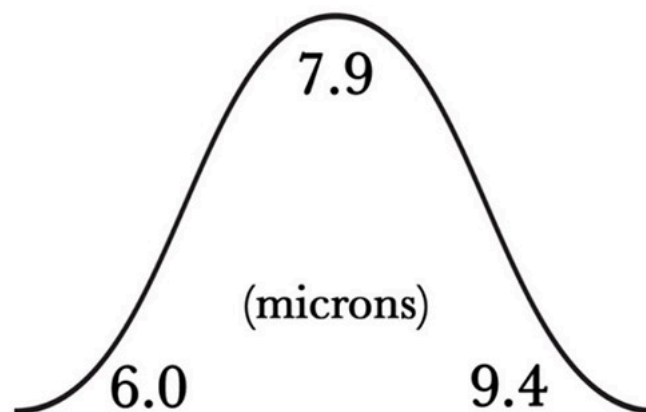
What would happen if you combined two materials with very high emissivity to get the best of both heaters?

The result was the most effective infrared heater ever created. By mixing quartz and graphite together, you get a more emissive heater than carbon at a much cooler temperature than ceramic. You also get a longer, deeper penetrating infrared wavelength. Because the chemical properties are now mixed, you get a blackbody absorption rating between that of carbon and ceramic combined— .95 (quartz) – .99 (graphite) = .97.

This blackbody absorption rating allows the combination quartz/graphite compound heater to hold a hotter temperature of 200 degrees °F, which is the ideal temperature for an infrared heater. Let's input 200 °F into our formula:

$$5268 / (200 \text{ °F} + 460) = 7.90 \text{ microns}$$

This means that the infrared wavelength is pretty much right in the middle of carbon (9.4 microns) and ceramic (6.0 microns). The Peak Energy Wavelength of the quartz/graphite heater is 7.90 microns, but remember, this is just an average which can be expressed by a bell curve.



As you can see, the peak emission wavelength is right at 7.90 microns, however, you still have infrared waves traveling at 6.0 microns and wavelengths traveling at 9.4 microns. Why is this important?

Our bodies are made up of over 60 percent water. Different molecules in your body are going to accept and absorb different infrared wavelengths. The shorter the infrared wavelength the deeper that it can penetrate into your body. The longer the wave-length the shallower the absorption, but at a greater amount.

The water molecules in your body absorb a greater amount of infrared than any other molecule in your body. Water actually absorbs the highest amount of infrared energy on the planet, and without water's ability to absorb infrared, we'd be in a continuous ice age.

The greater the amount of infrared energy that your body receives, the greater the amount that will be absorbed by your body's water molecules. The different molecular types in your body are water, protein, connective tissue, fats and carbohydrates—98.7% of these are water molecules.

Because a ceramic heater has an emissivity of .99 (versus .95 emissivity of carbon) more of it will be absorbed by your body's water molecules and your core body temperature will rise faster. The more infrared light, the more energy is absorbed by your body. *All things being equal, you will get a much better sweat in a ceramic sauna rather than in a carbon sauna.*

However, because we were able to create our (patent pending) combination quartz/graphite compound heaters we have effectively found the sweet spot of infrared heaters. You literally get the best sweat possible whilst being able to sustain that sweat for over 30 minutes. In an infrared sauna, the more sweat, the better.

From my own experience and hearing hundreds of stories throughout the years, carbon simply doesn't put out enough infrared energy to be absorbed by your body. Your experience and resultant health benefits will be greatly reduced when using only carbon heaters.

Additionally, you get an even distribution of infrared light around your body at 360°. This allows for you to absorb so much more infrared at every angle you are sitting in your sauna.

Halogen Heaters



The last type of infrared heaters that have become popular due to "full spectrum" infrared saunas are halogen heaters. Unfortunately, somebody thought it would be good to falsely claim that these heaters

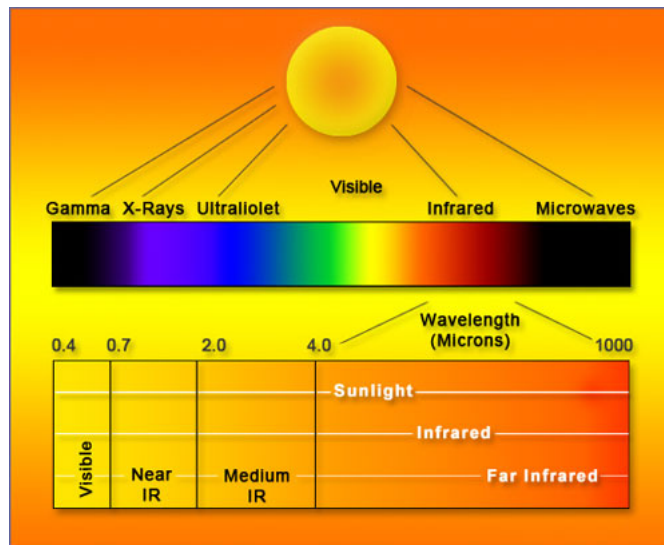
produce near infrared (which they don't) and claim them to be "full spectrum heaters."

Halogen heaters happen to be great heaters that produce a very high surface temperature (775°F). They are used across the globe at restaurants for outdoor patios to keep their customers warm. I'm pretty sure you have felt the heat these give off. I have used them many, many time in a sauna environment and have sold them to 6/7 continents—people love them. *That being said, they aren't full spectrum heaters!* And I can prove it using our nifty formula!

Let's plug in 775°F to see where it lands—near, mid or far.

$$5268 / (775^{\circ}\text{F} + 460) = 4.26 \text{ microns}$$

This is still in the far infrared bandwidth!



In order to get to the cooler end of the near infrared spectrum, you would have to heat an object to 2150°F! This is where near and mid infrared overlap. This is the actual burning temperature inside of a bonfire! *You simply could never put something this hot inside of a 4' x 6' x 7' room.* It would be a severe fire hazard and you would fry your clients!

How someone in this industry thought this would be good to call "full spectrum" is beyond me... What's worse is that literally every company has followed suit, which has caused people searching for infrared saunas online to be very uninformed. Most people calling me demand their future sauna to be "full spectrum" without even knowing the benefits of each wavelength. They just hear the buzzword "full spectrum" and there's no negotiating. I wish they knew that what they end up purchasing definitely is not a "full spectrum", "broad spectrum" or "true spectrum" sauna. Frankly it's all bullshit and the industry is pulling a fast one on the uninformed public (hence this book!) Sorry for the rant, but it needs to be said...

That being said, halogen heaters happen to be great emitters of far infrared energy. They are made of quartz, which does a great job of keeping its charge from infrared energy and then putting it out as heat. I really do think the sweat you get in an infrared sauna is better having them in the sauna.

[Go to Top of Page](#)

Near vs Far Infrared

The Importance of Surface Temperature

The surface temperature of the heater is going to determine the infrared wavelength that is absorbed into your body. The longer the wave, the more that can be absorbed. As discussed in previous chapters, How Infrared Saunas Work, Wien's Law shows the thermal energy output in microns. As a result of inputting a surface temperature, you get a wavelength that shows how deep a heater can penetrate into your body with far infrared waves.

So what's the best micron wavelength for your body to absorb in an infrared sauna? What will provide the maximum health benefits?

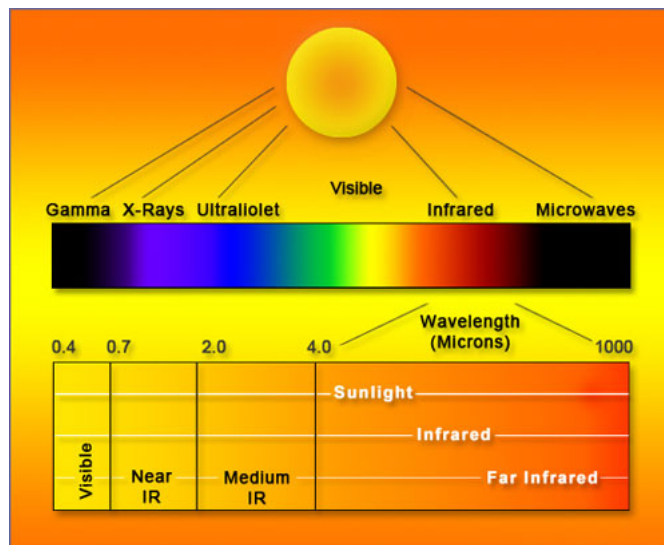
The short answer is 7.90 microns.

Now I'll show you how we got there.

The most important factor for receiving health benefits in an infrared sauna is raising your core body temperature. As a result, your body will excrete toxins, you will lose weight and recycle old cells, so you must have a sauna that gets hot. The best surface temperature to heat your body and penetrate deep into your tissue is 200 °F.

$$5268 / (200 \text{ °F} + 460) = 7.90 \text{ microns}$$

As we see in the infrared light chart, the far infrared spectrum of light goes from 4 to 1000 microns.



Remember that the Wien's Law formula is actually an inverse of surface temperature to wavelength. The hotter the surface of an object, the shorter the wavelength. The inverse is true as well. As we get a higher

micron level, the surface temperature drops and the wavelength becomes longer.

Near-infrared is represented in the infrared spectrum from .7 microns to 2.0 microns. Using Wien's Law, this results in a surface temperature of 2150 °F – 7000 °F. The interior air temperature will obviously never get that hot in any infrared sauna, but in order to mathematically get the proper near-infrared wavelength, the near infra-red heater must (theoretically) get that hot.

The problem, besides the unreasonable heat requirement, is that the lower micron level does not help you attain the major health goals of infrared saunas—rest, weight loss and detoxification.

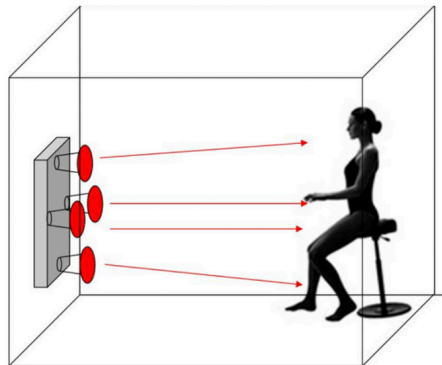
Near Infrared

Near-infrared heaters operate at a much higher temperature than far infrared heaters. The hottest a far infrared heater will get to is 825 degrees °F. At a 4.0 micron wavelength, the surface temperature of the infrared heater is 825 degrees °F, which is highly uncomfortable to be sitting a few inches away from.

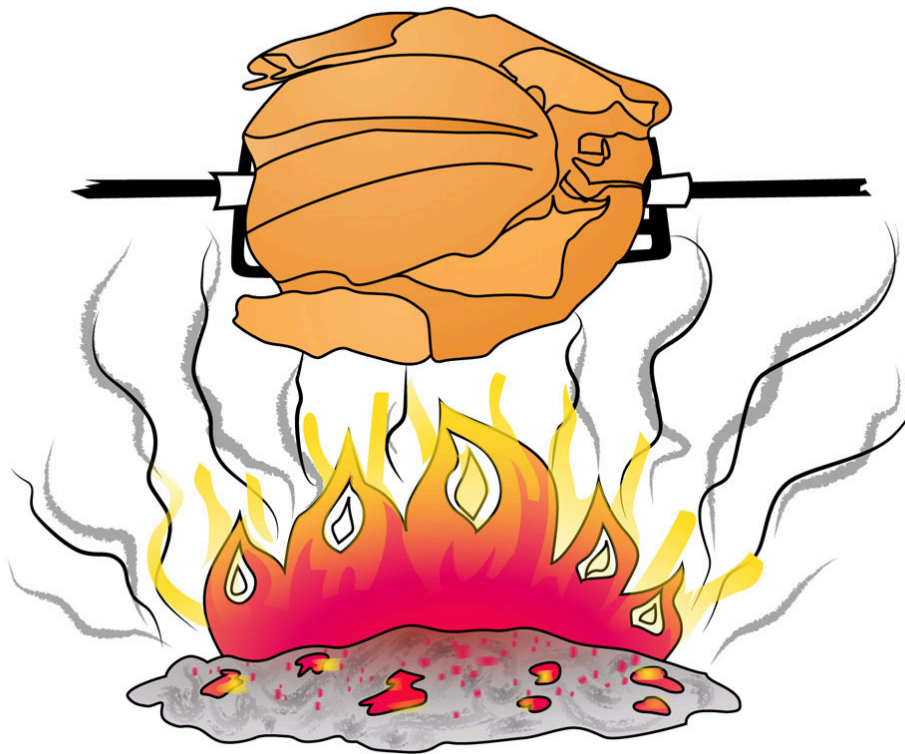
As I explained earlier, by trying to produce a deep sweat using the near-infrared band of radiant light, you have to heat the surface temperature of the object producing heat to *at least* 2,150°F. Shall I repeat that?

Now, there is an entire sub-section of infrared saunas out there called “near infrared saunas.” You might have heard of them. They claim to use near infrared heaters alone to heat your body. However, having done our research and scientifically proven that no infrared sauna heater has the surface temperature hot enough to be in the near infrared bandwidth, these claims are false! “Near infrared sauna” are using far infrared heaters! You can tell as they use halogen heaters! Simply return to the previous chapter explaining halogen heaters. However, these heaters are still extremely hot at 775°F.

Because these “near-infrared sauna” heaters are so hot, there is usually only one side of the body being heated at a time. Take a look at the following pictures:



The “near infrared” lamps only exist from one location in the sauna—there aren't multiple panels. If there were panels on both sides, you would heat yourself to unsafe levels. Because there is only one direction the near infrared light is coming from, you have to continuously turn your body like a rotisserie chicken to produce a full body sweat. This is far from the even, enveloping, 360° heat of a far infrared sauna.



The Bonfire Explanation

The thermal radiation created by a bonfire travels away in all directions. Heat that is transferred via convection mostly travels upwards as the heated air billows up. If you are to the side of the fire, the heat you receive is transferred via thermal radiation (i.e. infrared light). If you are standing directly above the fire, you receive heat from both thermal radiation and convection (not a good place, mind you). For this reason, directly above the fire is the hottest place to be.

Note that thermal radiation can include many different wavelengths of electromagnetic radiation and not just infrared. So what's the internal temperature of a bonfire? **2100–2200°F!**

These are actual near infrared temperatures!

So, here's a great way to explain how near infrared doesn't actually exist in an infrared sauna:

As we've already shown, "near infrared heaters" don't exist. They simply don't have the surface temperature in the proper range 2150°F+ to be considered near infrared, *let alone mid infrared!*

But, let's say for kicks that you did actually sit next to an object with the same internal temperature as a bonfire... Have you ever sat next to a roaring bonfire outside on a cool night? It feels amazing right? But why does it feel good? Because you're sitting far enough away from it to be the right temperature for you to feel comfort in the warmth. *You don't sit directly next to the fire!*

If you sat directly next to the fire your clothes would literally start burning from the heat of the air alone! So what do you do? Move away to a safe and comfortable distance.

My point being, that by the time the infrared waves hit your body from a bonfire operating at 2200°F, that thermal radiation (and respective infrared waves) have cooled significantly to be inside the far infrared bandwidth of light.

So, while you might be seeing a near infrared fire, you are feeling far infrared heat!

Far Infrared – The Game Changer

Far infrared saunas actually became popular much earlier than near infrared saunas. When it was discovered you could skip a step by heating your body directly, instead of the air and water between (like traditional saunas), it was by using the far infrared wavelength.

The objective of an infrared sauna is to produce a deep and sustained sweat by whole body hyperthermia, and no more than that. In order to hit this exact measurement, you must heat the body by using an optimal wavelength of light (the Peak Emission Wavelength) that results from the thermal radiation of an object (the surface temperature).

Far infrared is fantastic for many of the same things that near infrared is great for—a boost in metabolic rate, reduce and burn fat cells, improved circulation, increasing cellular energy, faster skin rejuvenation, and faster cellular perfusion.

I am in no way saying that near infrared doesn't have therapeutic value (as we'll see in a later chapter); however, in the infrared sauna environment, it is less than ideal. If you are certain you need near infrared, I would recommend a handheld near-infrared LED light panel that you place directly on top of your skin outside of the sauna.

I highly encourage you to conduct as much research on near vs. far infrared as you'd like but remember to look for the science behind the claims. The purpose of using an infrared sauna is the cumulative health benefits, all of which can be safely and comfortably attained through far infrared while you are sweating, losing weight, and detoxifying your body.

Moreover, if you are sitting in an infrared sauna and it is producing heat, you're sitting next to a far infrared heater, no matter what they tell you!



[Go to Top of Page](#)

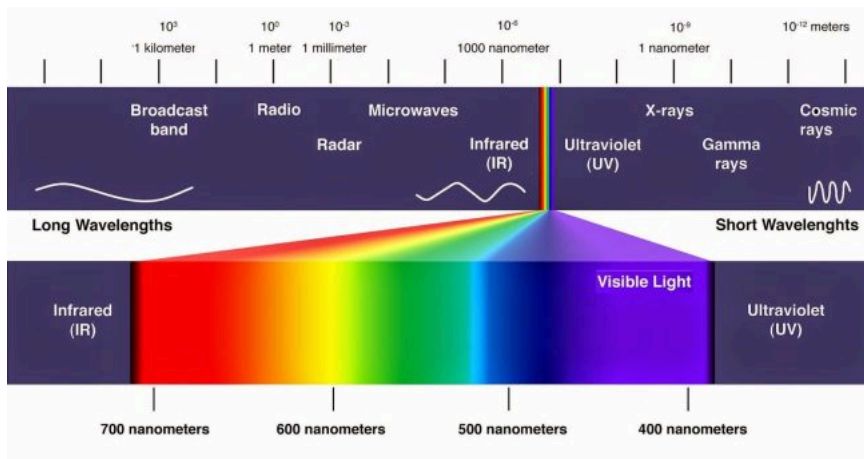
Full Spectrum Infrared Saunas

What Is a Full Spectrum Infrared Sauna? A Guide to Near, Mid and Far Infrared

Far infrared saunas in their current form have been around for 30 years. Near infrared saunas have been around for about half the time as people started realizing the benefits of not just far infrared, but mid and near as well.

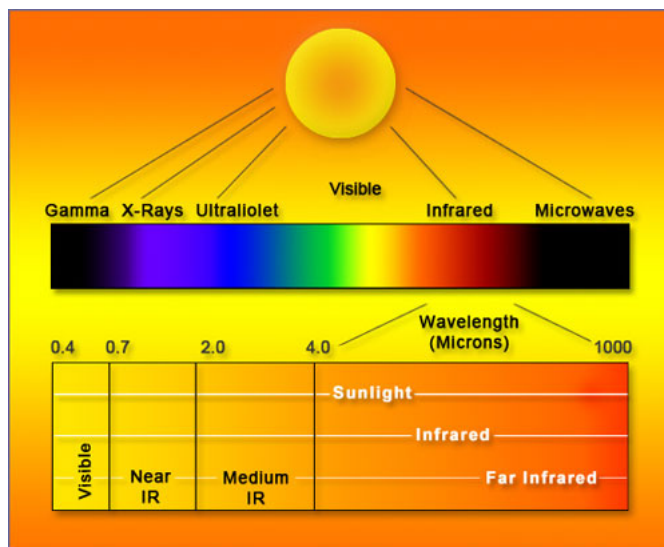
Without getting into a discussion of which is better in an infrared sauna environment ([near vs. far, which we've already covered in detail here](#)) let's discuss the merits of having both near, mid *and* far infrared in a sauna. The sun's spectrum of electromagnetic radiation has an entire portion that is made up of near, mid and far infrared—which we humans feel as heat.

This infrared spectrum lies just beyond the visible light spectrum as you can see here:



Each portion of the electromagnetic spectrum of light serves its own purpose (gamma rays are used to kill cancer cells, visible light allows for us to see, and infrared allows us to feel heat). We can then harness this penetrating heat in an infrared sauna to put out invisible light that our body absorbs as heat which then raises our core body temperature and produces the [amazing health benefits we're already aware of](#).

There are three levels of infrared, near, mid and far, that each resonate with the subcutaneous fat layer of the human body producing different healing responses. Let's take a look at the three kinds of infrared light and their benefits in an infrared sauna:



Near Infrared: Healthy cell immunity, wound healing, skin purification and pain relief.

Near infrared wavelengths have a lower micron level and a resulting shorter wavelength which mostly penetrates the epidermis layer of the skin. This makes it a very safe choice for the improvement of cell health, the renewal of skin, tissue growth and wound healing.

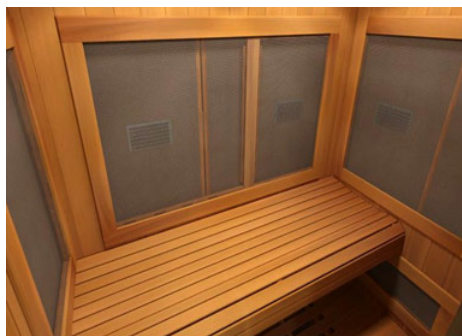
A lot of sauna companies use near infrared technology that is similar to the infrared used in handheld cosmetic and LED healing devices. While these LED devices are great when they can be targeted on a

specific area of skin—they are very hard to use in an infrared sauna environment, as you need to place the LED lights within inches of your skin.

Let's take a look at an LED panel that's used by a competitor.



In order for this device to be effective you have to hold it directly over your skin for an extended period of time (minimum 15 minutes to get the blood flowing to the desired area)—not behind a mesh heater pointed at one spot on your back. What happens if you have knee pain? You would have to stand and hold your knee right in front of the LED panel. What's more is that this LED panel is hidden behind a mesh cover which will block nearly all of the rays of light (remember, all light travels in a straight line, including infrared). What good is this light if it is being blocked by mesh? It makes zero sense!



The object of an infrared sauna is to heat your body and raise your core temperature—a small 10 watt LED panel is not going to heat your body *at all*. Now, I am a firm believer of the effects of near infrared in LED light form—it's just hard to do correctly in an infrared sauna (and at the moment, no sauna company is doing it right).

What I would personally do is purchase a hand-held near infrared LED device and hold it over the area of skin that I wanted to re-juvenate.

You still get all of the amazing health benefits of near infrared (cell health, the renewal of skin, tissue growth and wound healing) *while* heating your body—which is what an infrared sauna is supposed to do! Furthermore, if you look at companies who only offer near infrared, you'll see they only use near infrared lamps—not LED panels. Why? Because they understand that saunas must be hot! But as we already went over, they aren't using actual near infrared!



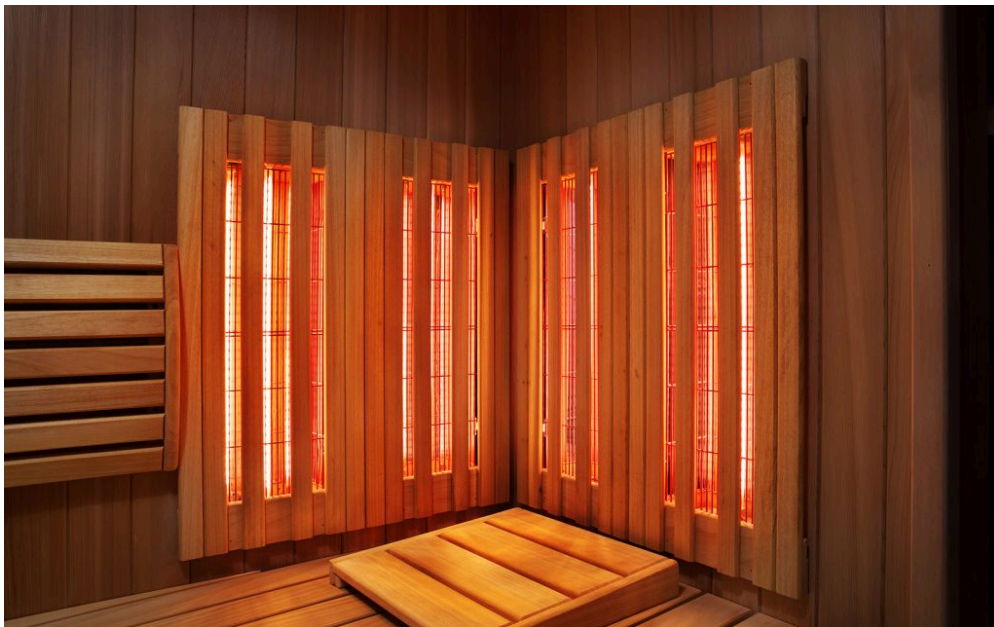
While near infrared does have great healing benefits, [we don't advise using only a near infrared sauna on its own](#). Near infrared gets *too* hot to be used solely in an infrared sauna (2,150 °F). Near infrared sauna companies know this and force their sauna users to sit on a small stool and rotate their body at different time intervals essentially rotisserie'ing' themselves. They have to do this because if they surrounded your body on all four sides it would be far too hot to get any benefit at all from. Not practical or comfortable!

Mid Infrared: Pain relief, improved circulation and weight loss.

Mid infrared wavelengths penetrate deeper into the body than near infrared and are therefore good for increasing circulation and blood flow. When used on a consistent basis, mid infrared sauna therapy has been shown to significantly increase blood flow and reduce muscle and joint pain.

Healing can occur faster because mid infrared penetrates deeper into soft tissue where inflammation occurs. To produce MIR, sauna heaters must be able to maintain a surface temperature of 825°F. This is extremely rare in the sauna environment as most heaters don't get this hot.

Though major infrared sauna companies may claim to provide mid infrared, the material used in their heaters never actually reaches this temperature. Don't be fooled by fancy marketing and branding. Let the sauna do the talking.



Far Infrared: Weight loss, Detoxification, Circulation, Lower Blood Pressure, and Relaxation

Because far infrared sauna therapy heats the body directly rather than simply warming the air, it raises the core body temperature and produces a deep, detoxifying sweat at the cellular level, where most toxins reside. Far infrared also aids in blood pressure reduction & weight loss, as you get a great passive aerobic exercise.

The longest infrared wavelength, far infrared, penetrates deepest into the body, reaching adipose tissue (fat cells) where toxins are stored. The range of temperatures that you want for a far infrared heating panel will be from 400°F to 90°F. Between these temperatures is where the far infrared band is produced.

However, we have found that sitting two inches away from a heater that is 400°F will be far too hot to be comfortable and will not allow you to stay in your sauna for 30 minutes (the object of an infrared sauna is to sit in there longer and prolong your sweat. The longer you sweat the more health benefits you'll get).

Every one of our carbon ("solocarbon," "nanocarbon," etc., they're all the same heater) competitors heaters only ever reach 140°F on the surface of their heaters which will simply not be hot enough to produce a sweat.

For this reason we aim for 200°F on the surface of our heaters which gives you the longest wavelength at the most beneficial temperature. You will also be able to sit in your sauna for 30 minutes each day while getting the deepest sweat possible.

Why Would You Want a Full Spectrum Sauna?

For many years Infrared Saunas have been either Far Infrared or Near Infrared. How you used one depended upon your health needs and requirements. Currently an optimal sauna experience combining all three

spectrums in one is available, which allows for extended diversity and an incredibly effective sauna experience.

This combination of all three spectrums of infrared ensures total health concerns could be addressed and targeted in only one session.

Your skin is the largest organ of your body. The subcutaneous layer of fat stores many toxins and can be found just below the skin's surface. A Full Spectrum Infrared Sauna can penetrate into the tissues up to a depth of two inches. The temperature of a full spectrum infrared sauna is typically between 100 – 150 degrees °F.

However, despite operating at a lower temperature, your body will typically perspire far more in a full spectrum infrared sauna due to complete heat penetration.



Full Spectrum Infrared Energy Penetrates Your Body at Not Just One Level, but Three

Normally our bodies pump ten to fourteen pints of blood per minute. Full spectrum infrared sauna rays increase the blood flow up to twenty six pints per minute. When blood flow is increased you have additional oxygenation assisting the body to repair cells and tissues.

The full spectrum infrared sauna also stimulates the sebaceous glands to release harmful toxins such as petrochemicals, mercury and other heavy metals. While there is much debate how these toxins are released—through your skin or through natural means (defecation, urine, and breath), *they are excreted either way.*

Toxins that cannot be expelled immediately after entry are stored in our bodies. The full spectrum sauna not only boosts the metabolism but is also extremely effective at aiding the upturn of immune function. While inside a full spectrum infrared sauna you can fully relax, listen to calming music, meditate, enjoy color light therapy, or perhaps a yoga routine to introduce heat into your practice.

After taking a full spectrum sauna session your body's core will be comfortable all day as the detoxing benefits continue long after your session ends. You'll be relieved of your pain too.

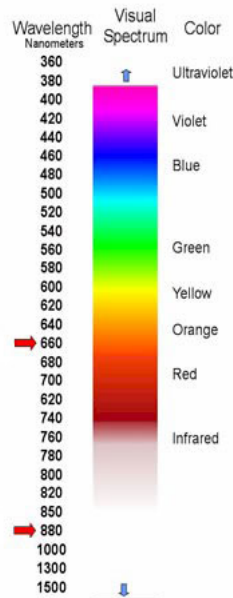
[Go to Top of Page](#)

Red Light Therapy / Photobiomodulation

Using Color Light LED Therapy in an Infrared Sauna

As we have gone over ad nauseam in this book, light is heat and heat is light. Each lightwave (color) has its own wavelength which has its own temperature. Remember, this is how infrared light was discovered as infra-red has a hotter temperature than red light.

In the visible spectrum of light each color has its own wavelength.



Red, orange, yellow, green, blue, violet and indigo. Now, here's how that light affects the body.

When the body (or a part of the body) malfunctions, it is replaced in a way similar to how machinery is handled. Cells have the ability to repair themselves—by sending repair proteins which either destroy the cell or turn it into a cancer cell. As we age, our cells gradually decay; the DNA stays relatively intact, but

proteins degrade with time. This is a big part of the aging process, leading to wrinkled skin as well as more serious consequences.

When these malfunctions are treated with chemical ingredients (medication) they can sometimes cause an array of negative side effects. Contemporary medicine uses these chemical ingredients to suppress how the machine is malfunctioning—but does not address the root issue, which is diseased life energies.

Albert Einstein had a theory about this. His approach dealt with the body not as an amalgamation of parts but as a total system operating in harmony with the electromagnetic light energy of the universe.

His understanding was that Photobiomodulation (or color light therapy; i.e., vibrational healing through specific light waves) lies in rerouted energy fields that form complex relationships with other fields surrounding the physical/cellular substance to “fix” the malfunction of how the machine works.

We are surrounded by light (and color). If we are engulfed in light it goes that this light and color can affect our health in both positive and negative ways. For example, you don't want to absorb too many gamma rays! An inverse to this is infrared—which is also a specific wavelength of light that gets absorbed into your body and gently raises your core body temperature. A rise in core body temperature is very similar to exercise which when sustained over a period of time causes the body to sweat—which is extremely healthy. *This is also true when your body absorbs specific colors of the visible light spectrum.*

According to the theory of chromotherapy, the body itself is composed of colors.

The body exists from colors: the body (and its parts) is stimulated by these colors. Internal organs and limbs of the body have their own color (literally); and thus, their own vibrational energy/wavelength.

We are all energy—down to the cellular level. Our body parts, organs, skin, hair and cells are energy centers which vibrate and harmonize with the frequencies of these colors and these colors harmonize with these body parts.

When these individual body parts deviate from these expected normal vibrations the body is either diseased or malfunctioning. By vibrating these malfunctioning parts with their harmonized wavelengths (colors) they become balanced and the diseased energy patterns are corrected.

Let's dive into how Photobiomodulation works.

Health Benefits of Each Color



Red – Younger looking skin. Decreases signs of aging, including fine lines and wrinkles, by increasing collagen production.



Violet – Cell renewal. Increases cell regeneration, which helps to cleanse the skin and reduce inflammation.



Blue – Combats acne and whitens teeth. Reduces the bacteria that causes acne and whitens teeth.



Cyan – Smoother skin. Smoothing, calming, healing treatment, that helps irritated and inflamed skin.



Green – Even complexion. Balances out redness and blotches for naturally beautiful skin.



Yellow – Reduces redness. Alleviates inflammation, sunburn, rosacea, or other skin conditions to enjoy healthier skin.



Orange – Glow from within. Revitalizes your skin for a brighter glow. Adds radiance and vitality to dull skin.



Infra-Red – Literally means 'below-red'. Penetrates deeper into the skin for better rise in core temperature.



Are Photobiomodulation and Red Light Therapy the Same?

Short answer: yes.

Red Light Therapy (RLT, also, Photobiomodulation [PBM]) is a form of Low-Level Light Therapy (LLLT) which releases light with relatively long wavelengths (600–1000 nanometers) over injuries or lesions to improve wound and soft tissue healing, reduce inflammation and give relief for both acute and chronic pain.

The red lights are released from light-emitting diodes (LED) that is usually built into a device made to expose these radiations to your body (such as lamps or lasers).

LEDs release energy through photons, which is the most fundamental unit of light and are released due to moving electrons within atoms (within the light). The intensity of PBM lasers and LEDs is not high like a surgical laser. There is no heating effect.

RLT is commonly found in gyms, spas, tanning salons, saunas or dermatology offices where you can take sessions. Each session lasts around 20 minutes and it may take up to 10 sessions for you to observe the health benefits. The procedure involves lying down or standing in front of the provider's LED lights, more often directed towards the face, areas that show signs of aging or a particular injury. The lights are placed within inches of the treated area.

Within this range, two types of low-level light are produced. The first is red light, which has an approximate wavelength of around 620–750 nm which is also known as the therapeutic window. Red is among one of the colors that are in sunlight, which is the wavelength that specifically gives you that refreshing and warm feeling when you bathe under the sun. As mentioned, infrared means, “below-red.” As red moves from the color to infra-red, there is some crossover of color. (Red is also the hottest visible color).

On the other hand, is near-infrared light (NIR) which has wavelengths between the range of 750–2500 nm. They range just above the visible light spectrum with an even more specific therapeutic window ranging

from 800 to 880 nm. Due to their longer wavelengths, NIR light is capable of penetrating deeper into the body's tissues compared to red light. When these wavelengths penetrate the skin, it increases the synthesis of a molecule called Adenosine Triphosphate (ATP) at a cellular level.

The Impact of Red Light Therapy on a Cellular Level

Adenosine triphosphate (ATP) is known as the primary molecule which creates and stores energy amongst all living organisms. They are produced through cellular respiration, a process in which molecules are broken down to release energy for cells to perform their primary functions.

During this process, nitric oxide is known to interfere with ATP production by increasing oxidative stress which may lead to cellular death. Nitric oxide levels usually rise when we experience stress or become ill. Hence, living in perpetual stress would reduce the longevity of our cells due to the lack of oxygen consumption and energy production.

During Red Light Therapy, red and near infrared light are absorbed by chromophores in the cells. By removing the nitric oxide roadblock, the cellular respiration process would occur much more efficiently in our bodies leading to more production of ATP and cellular regeneration.

As more energy is produced and with cellular death being significantly decreased, the body's metabolic functions become amplified. Hence the consumption of oxygen would increase which cells use to build new proteins to promote cellular regeneration. This is what causes the myriad of rejuvenating, detoxifying and strengthening effects that celebrities, athletes and everyday people have experienced through the red light therapy treatment.

Red Light Therapy and Infrared Saunas

Red light therapy is getting extremely popular. The way it is administered I personally don't understand. Patients stand in front of a tower (or LED panel) and then turn their body 360° during a 20-30 minute span. Unfortunately, this reminds me of our rotisserie chicken example. Remember?



As we've already gone over, this is not ideal—it's (1) uncomfortable to keep spinning yourself around and (2) not the fastest way to absorb infrared energy (either through infrared in LED form or by way of light felt as heat. What would be better would be to have the LEDs enveloping your body at 360° around you.

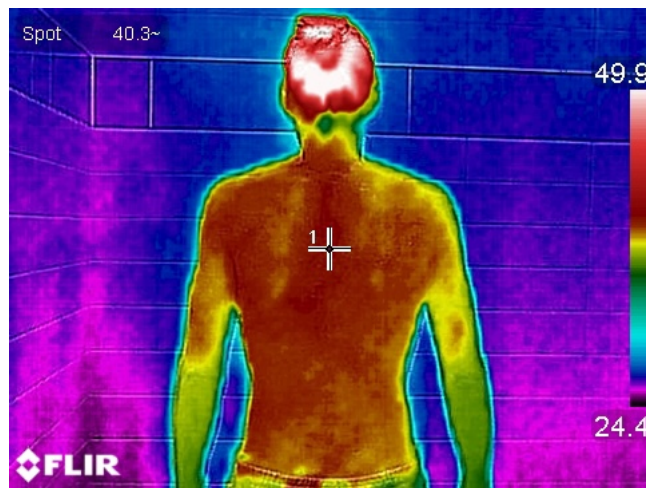
While I can not deny the health benefits and medical studies with conclusive evidence of Photobiomodulation benefits, I think the best way to administer LED light would be in an infrared sauna. That way, you are doing two things at once—raising your core body temperature as well as energizing your cells through increasing ATP rejuvenation with LED lights. The ideal scenario would be to have *both* the infrared and LED lights surrounding your body from *every* direction.

By adding RLT to an infrared sauna session, you get the (dare I say) “Full Spectrum” of infrared benefits.

Additionally, doing so would stimulate the production of Heat Shock Proteins (HSPs) which are bodily proteins that promotes its metabolism. Increased temperatures also enhance cardiovascular functions such as boosting blood flow, the rate at which the heart pumps blood and efficiency of transporting oxygen to the muscles. Furthermore, this prevents cellular death, promotes the strengthening of muscles and bones, increases detoxification, pain relief and wound healing.

I go into far greater detail of Red Light Therapy health benefits in the health benefits chapter below.

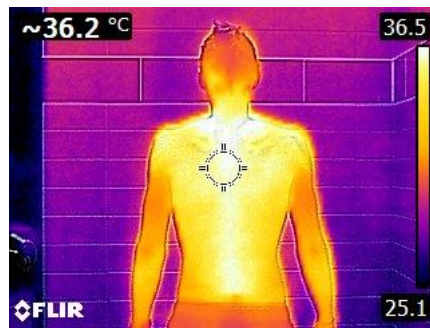
VantaWave™ Quartz/Graphite



Patented

- **97%** Emissive
- **190°F** Surface Temperature
- Wavelength in microns: **7.9**
- Average EMF: **.20 mG**
- Most effective at raising core temp for 30+ minutes
- Most comfortable
- Long infrared wavelength for maximum absorption

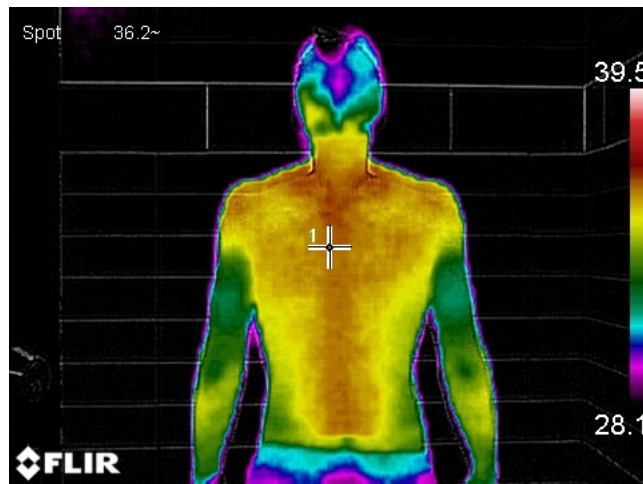
Halogen Heaters



Generic

- **97%** Emissive
- **775°F** Surface Temperature
- Wavelength in microns: **4.2**
- Average EMF: **3 mG**
- Very Effective at raising core temp for 20 minutes
- Less comfortable/Most Intense
- Shortest infrared wavelength for infrared absorption

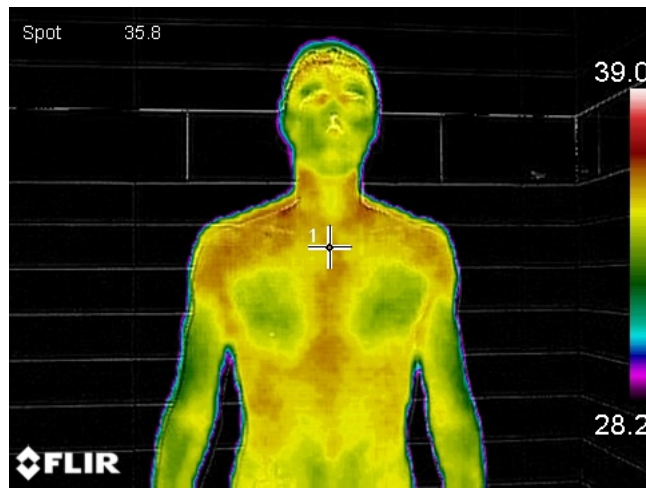
Ceramic Heaters



Generic

- **97%** Emissive
- **400°F** Surface Temperature
- Wavelength in microns: **6.0**
- Average EMF: **10 mG**
- Very Effective at raising core temp for 20 minutes
- Less comfortable
- Moderate infrared wavelength for infrared absorption

Carbon Heaters



Generic

- **95%** Emissive
- **140°F** Surface Temperature
- Wavelength in microns **9.2**
- Average EMF: **30 mG**
- Least effective at raising core temp for 30 minutes
- Least effective
- Long infrared wavelength with little to no heat/absorption

As you can see in our infrared absorption test, the VantaWave™ Quartz/Graphite heaters have the most amount of absorbed infrared. This is because they have the most infrared emissivity combined (with the longest infrared wavelength) with the greatest angle of absorption.

What this means is that because of the surface temperature, the heaters can be placed 360° around your body. Because of the high heat of the halogen and ceramic heaters, you can only get up to 180° of coverage. This makes a difference in overall infrared absorption and body temperature.

While halogen and ceramic heaters are great for overall infrared output and emissivity, they are lacking in this angle of absorption—for this reason, they're not ideal to be the primary heaters in an infrared sauna.

Carbon heaters (also known as nano-carbon) are the cheapest infrared heaters to manufacture. This is why you will see them all over the internet for very low prices in the cheapest saunas. They are also riddled with very high Electromagnetic Frequency or EMF.

The Verdict?

because of their 360° angle of absorption, VantaWave™ Quartz/Graphite heaters are the most effective heaters at raising core body temperature over a 30 minute period.

The graphite elements allow the heaters to produce a long wave infrared heat. This long wave far infrared heat penetrates deeper into the body and is more readily absorbed.

The quartz compound gives the heaters a very high and hot infrared output when compared to nano-carbon heaters. Because of this we can concentrate 100 percent of the infrared light right on your body.

Shop our Full Spectrum Saunas



Shop Saunas





**A+ BBB Rating, Full Lifetime Warranty, Only ★★★★★
Reviews**

[Go to Top of Page](#)

I am glad infrared saunas have developed the way they have, because I couldn't imagine my life without the benefits they provide, like deep sleep, lower blood pressure, less joint pain, weight loss, and a boosted immune system. Here at **SaunaCloud** I sell saunas that are some of the best history has offered. My far infrared saunas use advanced ceramic-carbon combination heaters for an amazing sauna experience. For more information on how SaunaCloud's infrared saunas work and how they can improve your health, **download my book *The Definitive Guide to Infrared Saunas***. Just **give us a call at SaunaCloud** 1.800.370.0820.

[If you enjoyed this page, please share it below](#) ↓ Thanks for reading,

[Facebook](#) [Twitter](#) [LinkedIn](#) [Reddit](#)



Christopher Kiggins | Sauna Enthusiast

I have been writing, learning, educating and generally pointing people in the right direction infrared sauna wise since 2012. Let me know how I can help:

chris@saunacloud.com – (530) 417-1220



The Highest Rated Infrared Sauna Company with only 5 star reviews

Our lifetime warranty is backed by the best service which makes SaunaCloud™ the choice of athletes, celebrities, architects and contractors the world over.

[See Reviews](#)



The Finest Italian-Inspired Custom Woodworking and Craftsmanship

We have a full woodshop with 25 years of woodworking experience. We only use the highest grade (A/btr) eco-certified Western Red Canadian Cedar.

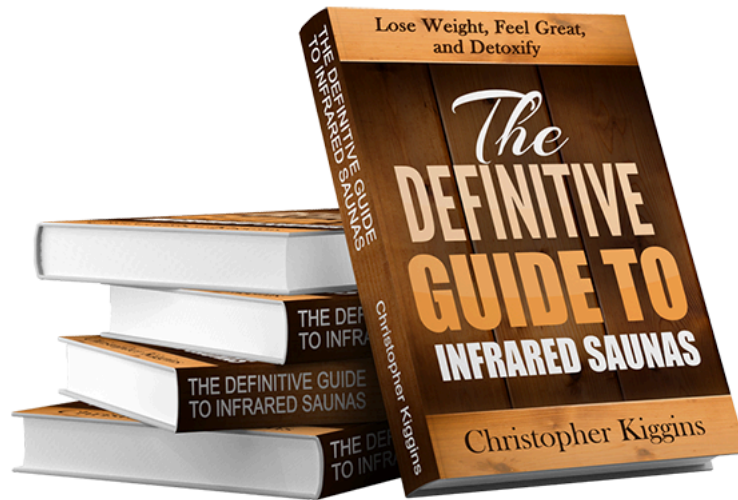
[See Craftsmanship](#)



VantaWave™ Full Spectrum Infrared Heaters are the Hottest on the Market

Our combination Carbon/Crystal infrared heaters hold the most amount of heat and put out the highest amount of infrared to get you the best sweat possible.

[See Vantawave™](#)



We wrote the book on infrared saunas (literally).

I have the most in-depth guide to infrared saunas ever written that you can have for free. I give you my honest and upfront account of what to look for when searching for an infrared sauna.

E-Book valued on Amazon for **\$10** for **FREE**

[📄 DOWNLOAD FOR FREE](#)

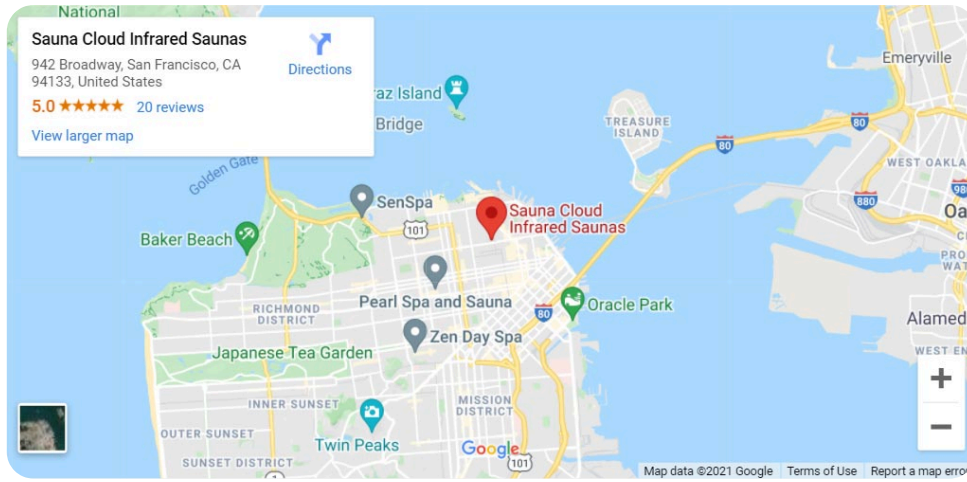
saunacloud™

We promise to get you the best possible sauna, deal and service you can find!

We are located in San Francisco CA, Montreal QC and Melbourne VIC.

Info@saunacloud.com

[800 370 0820](tel:8003700820)



[Dedicated Service](#)

- [Reviews](#)
- [On-Call 24/7 Service](#)
- [Full Lifetime Warranty](#)
- [Shipping Policy](#)
- [Privacy Policy](#)

[Shop Saunas](#)

- [Custom](#)
- [One Person](#)
- [Two Person](#)
- [Three Person](#)
- [Four/Five Person](#)

[Books & Guides](#)

- [Definitive Guide to Infrared](#)
- [Custom Sauna Guide](#)
- [Buyer's Guide](#)
- [Outdoor Sauna Guide](#)
- [Medical Studies Guide](#)

[Why SaunaCloud™](#)

- [Why Choose Us](#)
- [VantaWave™](#)
- [Health Benefits](#)
- [Education](#)
- [Sitemap](#)



© Sauna Cloud LLC 2021 | Rights reserved | San Francisco, CA | Montreal, QC | Melbourne, VIC

Made with ❤️ by Chris