

# Far Infrared

What is Infrared? What exactly is radiant heat? No need to worry- it has nothing to do with either ultraviolet radiation (which gives you a sunburn and damages your skin) or atomic radiation (the kind from a nuclear bomb). This information is provided by the infrared sauna industry not by Day Spring. Day Spring makes no claims of any kind.

Radiant heat is simply a form of energy that heats objects directly through a process called conversion, without having to heat the air in between. Radiant heat is also called infrared energy (IR). The infrared segment of the electromagnetic spectrum is divided into 3 segments by wavelength, measured in microns or micrometers (a micron = 1/1,000,000 of meter): 0.076 - 1.5 microns = near or close; 1.5 - 6.6 = intermediate; 5.6-1,000= far or long wave infrared. The infrared segment of the electromagnetic spectrum occurs just below or "infra" to red light, which we perceive as heat. Our sun produces most of its energy output in the infrared segment of the spectrum. Our atmosphere allows IR rays in the 7-14 micron range to safely reach the earth's surface. When warmed, the earth radiates infrared rays in the 7-14 micron band with its peak output at 10 microns. The sun is the principal source of radiant energy that we experience daily. Have you ever been outside on a partly cloudy spring day of about 50 deg and felt quite comfortable when suddenly the sun was obscured by a cloud? Although the air temperature had not had time to drop, you felt chilled, as the cloud would not let the warming infrared rays through to reach you.

The infrared heat in your IR heat sauna is just like the heat from our sun or that which our own bodies produce as they burn fuel to keep us warm. Recent books such as *Cross Currents*, by Robert O. Becker, M.D., have detailed the hazards of exposure to certain kinds of electromagnetic fields such as those encountered under high tension power lines or while working at computer display terminals. Researchers have reported that infrared radiant heat antidotes the negative effects of such toxic electromagnetic sources. Infrared saunas use infrared radiant energy to directly penetrate the body's tissues a depth of over 1 1/2". Its energy output is tuned to correspond so closely to the body's own radiant energy that our bodies absorb more than 90% of the infrared waves that reach our skin. A conventional sauna must rely only on indirect means of heat: First, on convection (air currents) and then conduction (direct contact of hot air with the skin) to produce its heating effect on us. In infrared sauna less than 20% of the infrared energy heats the air, leaving over 60% available to be directly converted to heat within our bodies. Thus an IR based system can warm its user(s) to much greater depth and much more efficiently than a conventional sauna, as its energy output is primarily used to convert energy directly to heat in us and not create excessively hot air that then only heats the skin superficially. This crucial difference explains many of the unprecedented benefits reported to be available through an infrared sauna. The infrared energy applied in these thermal systems may induce up to 2-3 times the sweat volume of a hot-air sauna while operating at a significantly cooler air temperature range of 110 to 130 F. vs. 180 to 235F for hot air saunas. The lower heat range is safer for those concerned about cardiovascular risk factors that might be adversely affected by the higher temperatures encountered in old-style saunas. Researchers report beneficial effects from hour-long whole-body infrared exposure in two groups of hypertensive patients that they studied in 1989 including 24-hour long increase in peripheral blood flow and decreases in the blood pressure. It is also distinctly more pleasant to breathe air that is from 50-125F cooler. Due to its "user-friendly" nature, people naturally prefer to use the

infrared sauna and will continue to do so on a regular basis due to the ease of breathing much cooler air while feeling warm as they choose, and to a distinctive feeling of well-being reported by users as an after effect. Your infrared sauna may even be used with the door fully open if the only effect desired is infrared penetration or if a very cool no-sweat experience is desired as in a pre-activating warm-up while fully clothed. This approach might be used in warming up prior to stretching, working out, running or exposure to cold weather. An infrared sauna is easier as well as more comfortable to use than old-fashioned hot-air saunas. Your infrared sauna brings you the same infrared rays experienced in the traditional American Indian sweat lodge and bring them to you in a much more convenient and easily used form, the privacy of your own home. The cleansing and purifying benefits attributed to the traditional sweat lodges are now available for daily purification without the time-consuming and extremely labor-intensive set-up process that a sweat lodge requires.

**Passive Cardiovascular Conditioning Effect** Your infrared sauna makes it possible for people who are otherwise unable to exert themselves or who won't follow through on an exercising and conditioning program to achieve a cardiovascular training effect. This also allows for more variety in any ongoing training program. " Many of us who run do so to place a demand on our cardiovascular system, not to build big leg muscles. Regular use of a sauna may impart a similar stress on the cardiovascular system, and its regular use may be as effective, as a means of cardiovascular conditioning and burning of calories and regular exercise." As reported in the Journal of American Medical Association, August 7, 1937. Due to the deep penetration, over 1-1/2" into the skin, of the infrared rays generated by your infrared sauna there is a heating effect deep in the muscular tissues and the internal organs. The body responds to this deep-heating effect via hypothalamic-induced increase in both heart volume and rate. This beneficial heart stress leads to a sought-after cardiovascular training and conditioning effect. Medical research confirms the use of a sauna provides cardiovascular conditioning as the body works to cool itself and involves substantial increases in heart rate, cardiac output and metabolic rate. As a confirmation of the validity of this form of cardiovascular conditioning, extensive research by NASA in the early 1980's led to the conclusion that infrared stimulation of cardiovascular function would be the ideal way to maintain cardiovascular conditioning in American astronauts during long space flight...