Montana Temperatures for Manual J Calculations

Location	Elevation	Latitude	Winter	Summer						
	Feet	Degrees North	Heating 99% Dry Bulb	Cooling 1% Dry Bulb	Coincident Wet Bulb	Design Grains 55% RH	Design Grains 50% RH	Design Grains 45% RH	Daily Range (DR)
Billings	3567	45	-7	90	62	-31	-24	-18	H
Bozeman	4475	45	-12	87	60	-36	-29	-23	H
Butte	5553	46	-14	84	56	-51	-44	-38	H
Cut Bank	3838	48	-16	84	59	-36	-29	-23	H
Glasgow	2760	48	-17	90	63	-28	-21	-15	H
Glendive	2456	47	-13	92	64	-26	-19	-13	H
Great Falls	3652	47	-13	88	60	-38	-31	-25	H
Great Falls, Malmstrom AFB	3525	47	-11	89	61	-11	-4	2	H
Havre	3200	48	-19	90	62	-33	-26	-20	H
Helena	3828	46	-10	87	59	-41	-34	-28	H
Kalispell	6780	48	-3	86	61	-29	-22	-16	H
Lewistown	4122	47	-12	86	60	-27	-27	-21	H
Livingston	4654	45	-14	87	60	-36	-29	-23	H
Miles City	2634	46	-13	93	65	-23	-16	-10	H
Missoula	3190	46	-1	88	61	-33	-26	-20	H

When designing an HVACR system, it is of paramount importance to use the correct indoor climate data (outdoor design conditions) for the locality in which the building receiving the new system is located. This data is used when calculating the building component heating load and component cooling load, which in turn are used to determine the required cubic feet per minute (CFM) for each room, design the appropriate duct work, and select the optimal equipment for the application. As is evident, not using the relevant outdoor design conditions can cause errors that will propagate throughout the system design process. The results are an uncomfortable indoor environment, energy inefficiency, and avoidable expenses.

The guide is a stand-alone version of the Outdoor Design Conditions table that originally appeared in the *ACCA Manual J Residential Load Calculation 8th edition v.2.0*. It also contains the relevant references and notes that can be found throughout the Manual J. It is ACCA's intention that the Outdoor Design Conditions Guide will aide Raters and Code Officials around the country in performing system design evaluations. For ease of use, the table of contents lists the page on which you can find a specific state.