

Environment Canada Imaging Cover Page

Report N.:



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SUMMER DESIGN TEMPERATURES

A summer design temperature may be broadly defined as the hottest temperature which is likely to recur frequently enough during the average summer to justify its use in designing buildings, equipment, etc. This report contains both dry-bulb and wet-bulb summer design temperatures for bases of 1, 2½ and 5%. The following specific definition has been used in this study - "A summer design dry-bulb temperature (1% basis) is the temperature value expressed in degrees Fahrenheit at or above which 1% of the July hourly outdoor dry-bulb temperatures occur". Similar definitions apply to the other values.

The summaries of observational data from which these values have been obtained are to be found in Canadian Meteorological Memoirs #5 (see references). Since July is usually considered the summer design month in Canada, hourly temperatures for this month were used. The period of record varies from station to station but always consists of eight to ten years within the period from 1947 to 1958. With the exception of values from Victoria, B.C., all other design temperatures have been derived from observations taken at airport observing sites.

From frequency tables of dry-bulb temperatures in the publication, plots were made for each station on normal probability paper showing the percentage of hours that the indicated temperatures were equalled or exceeded. The plotted points were then joined by straight lines and temperatures corresponding to the 1, 2½ and 5% probability levels were read off. These are the design dry-bulb values given below. The design wet-bulb temperatures were obtained in a similar manner.

The summer design dry-bulb temperatures obtained in this study correspond closely with those values used in constructing the summer design temperature maps published in the Climatological Atlas of Canada (1953), while the wet-bulb design temperatures also correspond closely with the values prepared at that time but not published.

REFERENCES

(a) Source of data

1960 Boughner, C.C.
Percentage frequency of dry- and wet-bulb temperatures from June to September at selected Canadian cities. Canadian Meteorological Memoirs #5. Dept. of Transport, Met. Br., 1960. 99p.

(b) Earlier summer design temperatures

1953 Thomas, M.K.
Climatological Atlas of Canada. NRC No. 3151, National Research Council, Ottawa, 1953. 253p.

(c) Winter design temperatures

1961 Boyd, D.W.
Climatic information for building design in Canada. Supplement No. 1 to the National Building Code of Canada. Associate Committee on the National Building Code, National Research Council, NRC No. 6483 Ottawa, 1961. 36p.

MKT/db
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SUMMER DESIGN TEMPERATURES (°F)

PROVINCE AND LOCATION	DRY BULB			WET BULB		
	1%	2½%	5%	1%	2½%	5%
Newfoundland Gander	84	81	78	69	68	66
Goose	86	81	77	68	67	65
St. John's	78	75	73	70	68	66
Prince Edward Island Charlottetown	81	80	76	72	70	68
Nova Scotia Halifax	80	77	74	69	68	66
Sydney	82	80	78	72	70	68
New Brunswick Moncton	86	83	80	74	71	69
Saint John	80	78	76	71	68	66
Quebec Bagotville	88	83	80	73	71	69
Montreal	89	86	84	76	74	73
Quebec	88	84	81	75	73	71
Seven Islands	76	74	71	66	64	63
Ontario Fort William	85	83	80	72	70	69
Kapuskasing	86	83	80	73	71	69
London	88	86	84	77	75	74
North Bay	84	81	79	72	70	69
Ottawa	90	87	84	75	74	73
Toronto	91	88	86	77	75	73
Windsor	91	89	87	77	75	74
Manitoba Churchill	81	77	73	68	66	63
Winnipeg	89	86	84	75	74	72
Saskatchewan Regina	90	86	83	73	71	69
Saskatoon	89	85	82	71	69	67
Alberta Calgary	83	81	78	66	64	63
Edmonton	85	81	78	69	67	65
Grande Prairie	83	80	77	66	64	63
Medicine Hat	93	90	87	71	69	67
British Columbia Penticton	91	89	86	71	69	68
Prince George	83	80	77	68	65	63
Vancouver	78	75	74	67	66	65
Victoria	78	73	69	64	62	60
Yukon Territory Whitehorse	80	77	74	62	60	59
Northwest Territories Yellowknife	78	76	74	65	63	62

Data were obtained from hourly temperature observations at airports except at Victoria B.C. where data are from city observatory.