CANADA

BUILDING NOTE

COMPUTED MAXIMUM WIND GUST SPEEDS

by

M.K. Thomas and D.W. Boyd

February 1958

DIVISION OF BUILDING RESEARCH • NATIONAL RESEARCH COUNCIL • OTTAWA, CANADA

COMPUTED MAXIMUM WIND GUST SPEEDS

by

M.K. Thomas and D.W. Boyd

The maximum wind gust speed can be defined as the highest wind speed that will occur, on the average, once in a given number of years. These high wind gusts usually last for only a few seconds and can therefore be measured only with an anemometer whose response is of the order of a second or two. There are few such anemometers connected to recording apparatus in Canada; in practice, therefore, these gusts must be estimated from records of mean wind speeds.

The number of miles of wind passing cup anemometers in each hour are the only records of wind speeds that are readily available for most Canadian stations. Thomas (1) compared these hourly mileages at a few stations with the corresponding peak gusts recorded by Dines pressure-tube anemometers, and derived the following equation:

$$G(\text{Max.}) = 25 + 1.22\ V$$

where G(Max.) is the maximum gust speed and V is the wind mileage for one hour as read from the three-cup anemograph.

The computed maximum gust speeds listed in this note are based on the maximum reported hourly mileage in a thirty year period, whenever such records are available. It is assumed that the anemometer is exposed in each case so that it will give wind speeds which are representative of average exposure at a height of about thirty feet above ground level.

Complete thirty-year wind speed records are available for a relatively small number of stations. Shorter records have been adjusted to make them comparable to the complete ones, and values for stations without anemometers have been estimated from nearby stations. The final computed values have been rounded off to the nearest five miles per hour.

A chart showing the variations in the computed maximum gust speed across Canada has been published in the National Building Code (2) and in the Climatological Atlas of Canada (3). In some cases it will be found that the values listed in this note do not agree precisely with the chart.

Discrepancies arise because it is not always possible to chart local variations, especially in areas where there are great variations in wind speeds across short distances.

Records for stations not listed can be obtained by writing to the Secretary, Associate Committee on the National Building Code, National Research Council, Ottawa.

References

(1) Thomas, M.K., Computed gust speeds in Canada. Meteorological Division, Dept. of Transport, CIR-2328, TEC-158, July 1953.

(2) National Research Council of Canada, Assoc. Committee on the National Building Code, National Building Code of Canada 1953.

(3) Climatological atlas of Canada. Prepared by M.K. Thomas. December 1953. (A joint publication of the Meteorological Division, Dept. of Transport and the Division of Building Research, National Research Council of Canada.) NRC 3151, 253p.

COMPUTED MAXIMUM WIND GUST SPEEDS

(m/hr.)

BRITISH COLUMBIA

Aldergrove	85	New Westminster	90
Chilliwack	85	Penticton	95
Comox	100	Prince George	75
Estevan Point	100	Prince Rupert	100
Fort Nelson	75	Swift River	75
Holberg	100	Tofino	100
Hope	85	Vancouver	90
Kamloops	85	Victoria	100
Masset	110	Warfield	85
Matsqui	85		

ALBERTA

Calgary	100	McMurray	95
Claresholm	115	Medicine Hat	105
Cold Lake	100	Namao	100
Edmonton	100	Red Deer	100
Grande Prairie	95	Vegreville	100
Lethbridge	120	Wainwright	100

SASKATCHEWAN

Dundurn	90	Regina	90
Moose Jaw	100	Saskatoon	95
Prince Albert	90	Swift Current	105

MANITOBA

Beausejour	85	Portage la Prairie	90
Brandon	90	Rivers	90
Churchill	120	St. Vital	90
Flin Flon	95	Shilo Camp	90
Gimli	90	The Pas	90
Macdonald	90	Winnipeg	90

ONTARIO

Angus	90	North Bay	80
Armstrong	80	Oshawa	90
Aurora	100	Ottawa	90
Barrie	90	Owen Sound	90
Barriefield	90	Pagwa	80
Belleville	90	Pamour	85
Blind River	90	Petawawa	90
Brantford	90	Peterborough	90
Camp Borden	90	Picton	90
Centralia	95	Port Arthur	85
Chatham	90	Port Maitland	95
Clinton	95	Rockcliffe	90
Cobourg	95	St. Catherines	85
Dona	80	St. Thomas	90
Downsview	90	Sarnia	90
Edgar	90	Sault Ste. Marie	90
Falconbridge	80	Simcoe	95
Fort William	85	Sioux Lookout	75
Foymount	85	Stratford	95
Gloucester	90	Sudbury	80
Guelph	90	Timmins	85
Hamilton	85	Toronto	90
Kapuskasing	80	Trenton	90
Kingston	90	Welland	95
Kitchener	90	Weston	90
London	95	Windsor	90
Malton	90	Woodstock	90
Niagara Falls	90		

QUEBEC

Arvida	85	Port Harrison	120
Aylmer	90	Quebec City	95
Bagotville	85	St. Felicien	80
Bouchard	90	St. Hubert	90
Casey	75	St. Johns	90
Clarke City	90	St. Jovite	85
Dorval	90	Senneterre	75
Hull	90	Seven Islands	90
Knob Lake	85	Sherbrooke	90
Lachine	90	Three Rivers	90
Mont Joli	110	Valcartier	95
Montreal	90	Val d'Or	80
Outremont	90	Verdun	90
Parent	75		

NEW BRUNSWICK

Campbellton	90	McGivney	95
Chatham	90	Moncton	100
Fredericton	95	Renous	90
Gagetown	100	Saint John	100

NOVA SCOTIA

Cornwallis	95	Halifax	100
Dartmouth	100	Newport	95
Debert	105	Sydney	110
Digby	95	Windsor	95
Greenwood	95	Yarmouth	100

PRINCE EDWARD ISLAND

Charlottetown	110	Summerside	110

NEWFOUNDLAND

Corner Brook	100	St. John's	100
Gander	110	Torbay	105
Goose	90		

YUKON TERRITORIES

Dawson	70	Whitehorse	75
Snag	80		

NORTHWEST TERRITORIES

Aklavik	90	Frobisher	120
Cambridge Bay	100	Padloping Island	120
Coral Harbour	120	Resolute	100
Fort Norman	75	Yellowknife	90