



HYGROMETRIC TABLES

WET & DRY BULB HYGROMETER

INSTRUCTIONS FOR USE

INSTALLATION

The Instrument should be hung in a shaded position with a steady how of air around the mercury bulbs. For outdoor use, a ventilated screen of the Stevenson type is recommended.

OPERATION

Fill the cistern with distilled or clean rain water to avoid the wick becoming clogged with impurities. The wick should be changed regularly to ensure a constant flow of moisture to the wet bulb.

TO TAKE A READING

1. Fan the bulbs gently until the mercury columns remain steady.
2. Take the reading of the wet and dry bulb columns.
3. Subtract the reading of the wet bulb columns from chart of the dry, thus arriving at the depression value.

USE OF TABLES

The dry bulb temperatures from 30°F to 140°F, are given down the left hand side of each table, the depression readings of the wet bulb from 1°F to 14°F, 15°F to 26°F and 27°F to 40°F respectively across the top.

Locate the readings of the dry bulb and the depression value given by the Hygrometer and at the intersection of the two columns, read off the percentage humidity.

In the case of temperatures falling between those given on the tables, interpolation is necessary. Interpolation should never be made across the thick zig-zag line but the required value should be obtained by extra-polation downwards or upwards according as to whether the wet bulb is water covered or ice covered. The values of relative humidity above the thick line are valid only when the wet bulb is coated with ice. The following examples illustrate the method of using the tables:-

(a) Dry Bulb	...	...	...	80°F
Wet Bulb	...	...	...	60°F

Hence, the Depression of the wet Bulb = 80° - 60°F = 20°F.

Reading directly from the tables, the relative humidity is 25%

(b) Dry Bulb	...	...	...	76.5°F
Wet Bulb	...	...	...	65°F

The Depression of the Wet Bulb = 28.5°C - 17°C = 11.5°C. In order to find the relative humidity, it is necessary to interpolate between the "Dry Bulb" columns 28°C and 29°C and the "Depression of Wet Bulb" columns 11°C and 12°C. The result is 26%.

(c) Dry Bulb	...	...	...	41°F
Wet Bulb	...	...	...	31.5°F

The Depression of the Wet Bulb -41°F - 31.5°F = 9.5°F. To obtain the relative humidity, it is necessary to interpolate between the "Dry Bulb" columns 40°F and 42°F and the "Depression of Wet Bulb" columns 9°F and 10°F. As the wet bulb is below 32°F, it is assumed that it is covered with ice, hence extra-polation should be numerically upwards from the figures below the line. the values for "Dry Bulb" 40°F and Depression 9°F and 10°F are respectively 27°F and 19°F. Looking at the run of figures outwards from the line and extra-polating numerically upwards, the corresponding value for "Dry Bulb" 42°F would be 32°F and 24°F. Hence the value required is found by interpolating midway between:

32	24
27	19

This gives a relative humidity of 25½ percent.

HYGROMETRIC TABLES

FOR THE

COMPUTATION OF RELATIVE HUMIDITY

FAHRENHEIT

