TABLE 2. CLIMATIC CONDITIONS COMPILED FROM U. S. WEATHER BUREAU RECORDS—(Continued)

COL. A	COL. B	COL. C	COL. D	COL. E	COL. F
State	City	Average Temp., Oct. 1st–May 1st	Lowest Temperature	Average Wind Velocity Dec., Jan., Feb., Miles per Hr.	Direction of Prevailing Wind, Dec., Jan., Feb.
N. C.	Raleigh	49.7	−2	7.3	SW
	Wilmington	53.1	5	8.9	SW
N. D.	Bismark	24.5	−45	......	NW
	Devil's Lake	18.9	−44	11.4	W
Ohio	Cleveland	36.9	−17	14.5	SW
	Columbus	39.9	−20	9.3	SW
Okla.	Oklahoma City	48.0	−17	12.0	N
Ore.	Baker	34.1	−20	6.0	SE
	Portland	45.9	−2	6.5	S
Pa.	Philadelphia	41.9	−6	11.0	NW
	Pittsburgh	40.8	−20	13.7	NW
R. I.	Providence	37.6	−9	14.6	NW
S. C.	Charleston	56.9	7	11.0	N
	Columbia	53.7	−2	8.0	NE
S. D.	Huron	28.1	−43	11.5	NW
	Rapid City	32.3	−34	7.5	W
Tenn.	Knoxville	47.0	−16	6.5	SW
	Memphis	50.9	−9	9.6	NW
Texas	El Paso	53.0	−2	10.5	NW
	Fort Worth	54.7	−8	11.0	NW
	San Antonio	60.7	4	8.2	N
Utah	Modena	38.1	−24	8.9	W
	Salt Lake City	40.0	−20	4.9	SE
Vt.	Burlington	29.3	−27	12.9	S
Va.	Norfolk	49.1	2	9.0	N
	Lynchburg	45.2	−7	5.2	NW
	Richmond	47.4	−3	7.4	S
Wash.	Seattle	45.3	3	9.1	SE
	Spokane	37.5	−30	......	SW
W. Va.	Elkins	38.8	−21	4.8	W
	Parkersburg	41.9	−27	6.6	S
Wis.	Green Bay	28.6	−36	12.8	SW
	La Crosse	31.2	−43	5.6	NW
	Milwaukee	33.0	−25	11.7	W
Wyo.	Sheridan	31.0	−45	5.3	NW
	Lander	28.9	−36	3.0	NE

If U. S. Weather Bureau reports are not available for the locality in question, then the U. S. Weather Bureau reports for the station nearest to this locality are to be used, unless some other temperature is specifically stated in the specifications.

In computing the *average* heat transmission losses for the heating season the average outside temperature from October 1 to May 1 shall be used. This average temperature is to be that reported by the U. S. Weather Bureau during the preceding 10 years, for the locality in question.

General Statement on Temperatures and Wind Velocity

In order that no misunderstanding may occur, the specifications for all heating systems or plants shall include a clause stating the following:

1. The lowest recorded outside temperature in the locality, as reported by the U. S. Weather Bureau for the preceding 10 years;

2. The outside air and inside breathing-line temperatures which were assumed and actually used in making the heat loss computations;

3. The average wind velocity in miles per hour for December, January and February, and the direction of the prevailing wind during these same months for the locality in which the heating plant is located—both wind velocity and direction are to be taken from the U. S. Weather Bureau records for the preceding 10 years.

HEAT TRANSMISSION COEFFICIENTS

Definition

The amount of heat expressed in B.t.u. which is transmitted in 1 hr. per square foot of the material as used in the building, for a difference in temperature of 1 deg. fahr. between the air on the inside and outside of the building, is called the coefficient of heat transmission for the material. The heat transmission coefficient for any given building material depends on the structure of the material and its density. Heavy or dense materials, the weight of which per cubic foot is high, usually transmit more heat than light or less dense materials, the weight of which per cubic foot is low.

Transmission Coefficients

By means of suitable tests on an actual wall construction, heat transmission coefficients *(Table 6) may be determined directly, or they may* be computed if certain physical constants are known. If tests are made to determine heat transmission coefficients, the inside and outside air temperatures should correspond with those actually existing in heating practice, and the amount of air movement, both on the inside and outside of the test wall, should be definitely stated in reporting the coefficients. Since actual temperature differences vary widely in different parts of the country, it is desirable to adopt some standard basis for testing, such as 70 deg. inside and 0 deg. outside, and in very precise work make a correction for other temperatures. It has been found that the absolute mean temperature of the wall affects the coefficient materially. The coefficient increases with the absolute mean temperature.

Tests are usually run under still air conditions, which means there was no wind movement, during the test, over the surfaces of the wall. In practice, some wind movement over the exterior surface of the wall should always be allowed for; hence *still air* coefficients cannot be used in actual work as they do not provide for the normal wind movement over the outside of the building in the locality in question during the heating season. Moreover, *still air* transmission coefficients cannot be corrected to provide for moving air conditions by multiplying by a single constant factor, for the reasons set forth under *Effect of Wind on Heat Transmission Coefficients* in Appendix to Section III., Code of Minimum Requirements of the AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.

The coefficient of heat transmission of various building materials and types of construction as given in Table 6, are for still air and for a wind movement of 15 miles and are generally applicable to heat transmission computations using equation (9). Such heat transmission co-