ADDENDA

ANSI/ASHRAE Addendum k to
ANSI/ASHRAE Standard 55-2020

Thermal Environmental Conditions for Human Occupancy

Approved by ASHRAE and the American National Standards Institute on October 31, 2023.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (www.ashrae.org/continuous-maintenance).

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FOREWORD

Addendum k modifies the SET code to account for body position.

Informative Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum k to Standard 55-2020

Revise Table D-1 as shown. Table D-1 was previously changed by Addendum g to Standard 55-2020. The addendum is published and available for free download on the ASHRAE website at www.ashrae.org/addenda.

Table D-1 Validation Table for SET Computer Model (for a standing person)

Temperature		MRT		Air Speed		RH			SET	
°C	°F	°C	°F	m/s	fpm	%	met	clo	°C	°F
25	77	25	77	0.15	29.5	50	1	0.5	~~23.3~~23.8	~~74.9~~74.8
0	32	25	77	0.15	29.5	50	1	0.5	~~12.3~~12.1	~~54.1~~53.8
10	50	25	77	0.15	29.5	50	1	0.5	~~17.0~~16.8	~~62.6~~62.2
15	59	25	77	0.15	29.5	50	1	0.5	~~19.3~~19.2	~~66.7~~66.6
20	68	25	77	0.15	29.5	50	1	0.5	~~21.6~~21.5	~~70.9~~70.7
30	86	25	77	0.15	29.5	50	1	0.5	26.4	79.5
40	104	25	77	0.15	29.5	50	1	0.5	~~34.1~~34.3	~~93.4~~93.7
25	77	25	77	0.15	29.5	10	1	0.5	23.3	73.9
25	77	25	77	0.15	29.5	90	1	0.5	~~24.8~~24.9	~~76.6~~76.8
25	77	25	77	0.1	19.7	50	1	0.5	24.0	75.2
25	77	25	77	0.6	118.1	50	1	0.5	~~21.4~~21.3	~~70.5~~70.3
25	77	25	77	1.1	216.5	50	1	0.5	~~20.3~~20.2	~~68.5~~68.4
25	77	25	77	3	590.6	50	1	0.5	~~18.8~~18.6	~~65.8~~65.5
25	77	10	50	0.15	29.5	50	1	0.5	~~15.2~~15.3	~~59.4~~59.5
25	77	40	104	0.15	29.5	50	1	0.5	~~31.8~~31.6	~~89.2~~88.9
25	77	25	77	0.15	29.5	50	1	0.1	20.7	69.3
25	77	25	77	0.15	29.5	50	1	1	~~27.3~~27.2	~~81.1~~81.0
25	77	25	77	0.15	29.5	50	1	2	~~32.5~~32.4	~~90.5~~90.3
25	77	25	77	0.15	29.5	50	1	4	~~37.8~~37.6	~~100.0~~99.7
25	77	25	77	0.15	29.5	50	0.8	0.5	23.3	73.9
25	77	25	77	0.15	29.5	50	2	0.5	~~26.0~~25.9	~~78.8~~78.6
25	77	25	77	0.15	29.5	50	4	0.5	~~30.5~~30.5	~~86.9~~86.9

Revise Normative Appendix D4 as shown below. The remainder of Section D4 is unchanged.

D4. COMPUTER PROGRAM FOR CALCULATION OF SET

The following code is one implementation of the SET calculation using JavaScript in SI units.

```
FindSaturatedVaporPressureTorr = function(T) {
/*
   Helper function for pierceSET calculates Saturated Vapor Pressure(Torr) at
   Temperature T (˚C)
*/
return Math.exp(18.6686 - 4030.183/(T + 235.0));
}
pierceSET = function(TA, TR, VEL, RH, MET, CLO, WME, PATM, BODY_POSITION) {

   /*

   Input variables – TA (air temperature): ˚C, TR (mean radiant temperature):
   ˚C, VEL (air speed): m/s, RH (relative humidity): %, MET: met unit, CLO: clo
   unit, WME (external work): W/m2, PATM (atmospheric pressure): kPa, BODY_POSI-
   TION (body position): "sitting or standing"
*/

[...]

   for (var TIM = 1; TIM <= LTIME; TIM++) { //Begin iteration
      do {
         if (flag) {
            TCL_OLD = TCL;
            CHR = 4.0 * SBC * Math.pow(((TCL + TR)/2.0 + 273.15), 3.0) * 0.72;
            if (BODY_POSITION === "sitting") {
               // 0.7 ratio between radiation area of the body and
               // the body area
               CHR = 4.0 * 0.95 * SBC * Math.pow(((TCL + TR)/2.0 + 273.15),
                  3.0) *0.7;
         } else { // if standing
               // 0.73 ratio between radiation area of the body and
               // the body area
            CHR = 4.0 * 0.95 * SBC * Math.pow(((TCL + TR)/2.0 + 273.15),
               3.0) *0.73;
         }
         CTC = CHR + CHC;
         RA = 1.0/(FACL * CTC); //Resistance of air layer to dry heat transfer
         TOP = (CHR * TR + CHC * TA)/CTC;
      }
[...]
```

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

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The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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