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Designation: D1238 – 20

Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer[1]

This standard is issued under the fixed designation D1238; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This test method covers the determination of the rate of extrusion of molten thermoplastic resins using an extrusion plastometer.

1.2 The values stated in SI units are to be regarded as standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—This standard and ISO 1133 address the same subject matter, but differ in technical content.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:[2]

D618 Practice for Conditioning Plastics for Testing

D883 Terminology Relating to Plastics

D1564 Test Method for Flow Rates for Poly(Vinyl Chloride) with Molecular Structural Implications

D4000 Classification System for Specifying Plastic Materials

D5947 Test Methods for Physical Dimensions of Solid Plastics Specimens

E456 Terminology Relating to Quality and Statistics

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 AWM Standard:

BAB-1 on Surface Texture[3]

2.3 ISO Standard:

ISO 1133 Determination of the Melt Mass-Flow Rate (MFR) and the Melt Volume-Flow Rate (MVR) of Thermoplastics[4]

3. Terminology

3.1 Terms used in this standard are defined in accordance with Terminology D883, unless otherwise specified. For terms relating to precision and bias and associated notes, the terminology used in this standard are defined in accordance with Terminology E456.

4. Summary of Test Method

4.1 After a specified preheating time, resin is extruded through a die with a specified length and orifice diameter under prescribed conditions of temperature, load and piston position in the barrel. Four procedures are described. Comparable results have been obtained by these procedures in interlaboratory round-robin measurements of several materials and are described in Section 16.

4.2 Procedure A is used to determine the melt flow rate (MFR), of a thermoplastic material. The units of measure are grams of material per ten minutes (g/10 min). It is based on the measurement of the mass of material that extrudes from the die over a given period of time. It is generally used for materials having melt flow rates that fall between 0.15 and 50 g/10 min (see Note 12).

4.3 Procedure B is an automatically timed measurement used to determine the melt flow rate (MFR) as well as the melt volume rate (MVR) of thermoplastic materials. MFR measurements made with Procedure B are reported in g/10 minutes. MVR measurements are reported in cubic centimeters per

[1] This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.70 on Physical Properties (Section D20.70.00).

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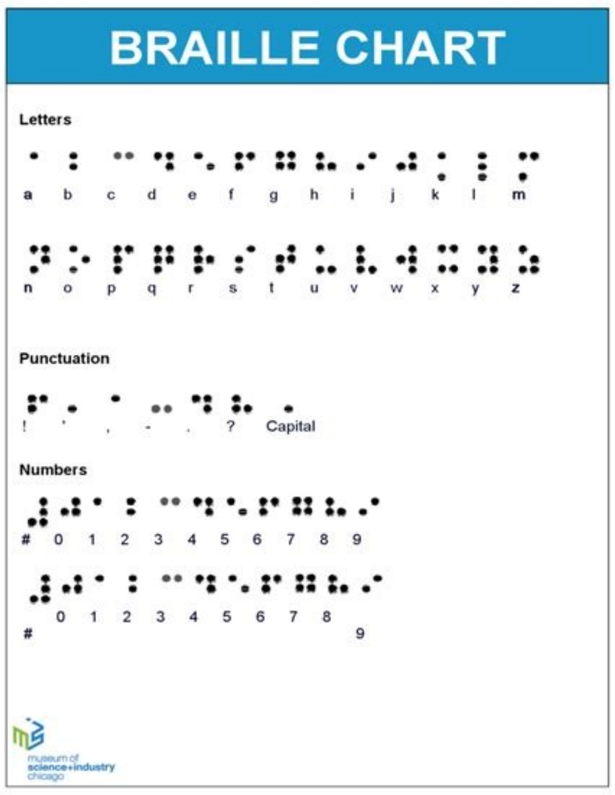
[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

* A Summary of Changes section appears at the end of this standard.



SQL Workbench/J User's Manual

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2019 Crawford County Land Conservation Photo Contest Entry Form

Entries due by November 1, 2019

Entry form and photo release form(s) must be sent before photo is eligible for judging

1. Fill out this form. One form for each photo entry. Participants can enter as many as five photos total each year
2. Fill out photo release form. One form for each photo entry.
3. Fill out subject and model release form(s) with signatures (only needed if people are visible in photo)
4. **Mail/email original signed completed forms**: Crawford County LCPZD, 225 N. Beaumont Rd. Suite 230, Prairie du Chien, WI 53821.
5. **E-mail digital photo(s) to:** bnagel@crawfordcountywi.org

Photographer's Name _____ **Phone Number** _____

Home Address _____

City _____ **State** ____ **Zip** _____

Email _____ **Organization/School Represented** _____

Select category and division for photo:

Conservation Practices	**Adult**	☐	**Youth**	☐
Close Up Conservation	**Adult**	☐	**Youth**	☐
Conservation In Action	**Adult**	☐	**Youth**	☐
Ag/Conservation Across America	**Adult**	☐	**Youth**	☐

If entry is youth category include: **Age:**_____ **Grade:**____ **School:**_____

Photo Title:_____

Where the photo was taken: City/Village/Township of: _____

Description of photo (Example: Red barn with two sheep)

_____

_____

Any and all photos entered in this contest can be used by the Crawford County Land Conservation Planning & Zoning Department in the future. The photos are to represent the Conservation in Crawford County. By entering this contest you are giving permission to use this photograph. Should your photograph win there will be additional forms needed to move onto the National Competition.

LIMITED LIABILITY COMPANY OPERATING AGREEMENT

_____, LLC

A MemberManaged Limited Liability Company

OPERATING AGREEMENT

THIS OPERATING AGREEMENT is made and entered into effective _____, 20_____, by and among:

_____

[list the full legal names of the LLC members] (collectively referred to in this agreement as the "Members").

SECTION 1
THE LIMITED LIABILITY COMPANY

1.1 *Formation.* Effective _____, 20_____, the Members form a limited liability company under the name _____, L.L.C. (the "Company") on the terms and conditions in this Operating Agreement (the "Agreement") and pursuant to the Limited Liability Company Act of the State of Oklahoma (the "Act"). The Members agree to file with the appropriate agency within the State of Oklahoma charged with processing and maintaining such records all documentation required for the formation of the Company. The rights and obligations of the parties are as provided in the Act except as otherwise expressly provided in this Agreement.

1.2 *Name.* The business of the Company will be conducted under the name _____, L.L.C., or such other name upon which the Members may unanimously may agree.

1.3 *Purpose.* The purpose of the Company is to engage in any lawful act or activity for which a Limited Liability Company may be formed within the State of Oklahoma.

1.4 *Office.* The Company will maintain its principal business office within the State of Oklahoma at the following address:

_____.

1.5 *Registered Agent.* _____ is the Company's initial registered agent in the State of Oklahoma, and the registered office is _____.

1.6 *Term.* The term of the Company commences on _____ [date] and shall continue perpetually unless sooner terminated as provided in this Agreement.

1.7 *Names and Addresses of Members.* The Members' names and addresses are attached as Schedule 1 to this Agreement.

1.8 *Admission of Additional Members.* Except as otherwise expressly provided in this Agreement, no additional members may be admitted to the Company through issuance by the company of a new interest in the Company without the prior unanimous written consent of the Members.

SECTION 2
CAPITAL CONTRIBUTIONS

2.1 *Initial Contributions.* The Members initially shall contribute to the Company capital as described in Schedule 2 attached to this Agreement.

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The store will not work correctly in the case when cookies are disabled. This site has been tested and optimized for Firefox, Safari, Chrome and Internet Explorer 10+. We recommend users of early versions of Internet Explorer to update to Version 11 or later. ASHRAE/ACCA Standard 183 establishes requirements for performing peak cooling and heating load calculations for buildings except low-rise residential buildings. Las opiniones de clientes, incluidas las valoraciones de productos ayudan a que los clientes conozcan mÃ¡s acerca del producto y decidan si es el producto adecuado para ellos. Para calcular la valoraciÃ³n global y el desglose porcentual por estrella, no utilizamos un promedio simple. En cambio, nuestro sistema considera cosas como la actualidad de la opiniÃ³n y si el revisor comprÃ³ el producto en Amazon. TambiÃ©n analiza las opiniones para verificar la confiabilidad. MÃ¡s informaciÃ³n sobre cÃ³mo funcionan las opiniones de clientes en Amazon ANSI/ASHRAE/ACCA Standard 1 83-2007 (RA 201 4) (Reaffirmation of AN SI /ASH RAE/ACCA Standard 1 83 -2007) Peak Cooling and Heating Load Calculations in Buildings Except Low-Rise Residential Buildings Approved by the ASH RAE Standards Committee on J anuary 27, 2007, and reaffirmed J une 28, 201 4; by the ASH RAE Board of Directors on M arch 2, 2007, and reaffirmed J uly 2, 201 4; by Air Conditioning Contractors of America on M arch 5 , 2007, and reaffirmed M arch 1 7, 201 4; and by the American N ational Standards I nstitute on M arch 6, 2007, and reaffirmed J ul y 3 , 201 4. ASH RAE Standards are scheduled to be updated on a five-year cycle; the date foll owing the standard number is the year of ASH RAE Board of Directors approval . The latest edition of an ASH RAE Standard may be purchased on the ASH RAE website (www. ashrae. org) or from ASH RAE Customer Service, 1 791 Tul lie Circle, N E, Atl anta, GA 3 03 29-23 05 . E-mail: org. Fax: 678-5 3 9-21 29. Tel ephone: 404-63 6-8400 (worldwide) or tol l free 1 -800-5 27-4723 (for orders in U S and Canada). For reprint permission, go to www. ashrae. org/permissions. © 201 4 ASH RAE I SSN 1 041 -23 3 6 Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine ASHRAE Standard Project Committee 1 83 Cognizant TC: TC 4.1 , Load Calculation Data and Procedures SPLS Liaison: Ross D. Montgomery Christopher K. Wilkins, Chair* Phil D. Forner, Vice Chair* Constantinos A. Balaras* Steven F. Bruning* Terry L. Cornell* Robert C. Doeffinger, Jr.* Glenn Friedman* Patricia E. Jones* Curtis O. Pedersen James F. Pegues* Henry T. Rutkowski* John Sedine* Jonathan C. Spreeman* Arunkumar T. Vedhathiri* *Denotes members of voting status when the document was approved for publication ASHRAE STANDARDS COMMITTEE 201 3–201 4 William F. Walter, Chair Richard L. Hall, Vice-Chair Karim Amrane Joseph R. Anderson James Dale Aswegan Charles S. Barnaby Steven F. Bruning John A. Clark Waller S. Clements David R. Conover John F. Dunlap James W. Earley, Jr. Steven J. Emmerich Julie M. Ferguson Krishnan Gowri Cecily M. Grzywacz Rita M. Harrold Adam W. Hinge Debra H. Kennoy Malcolm D. Knight Rick A. Larson Mark P. Modera Cyrus H. Nasseri Janice C. Peterson Heather L. Platt Douglas T. Reindl Julia A. Keen, BOD ExO Thomas E. Werkema, Jr., CO Stephanie C. Reiniche, Manager of Standards SPECIAL NOTE This American National Standard (ANS) is a national voluntary consensus standard developed under the auspices of ASHRAE. Consensus is defined by the American National Standards Institute (ANSI), of which ASHRAE is a member and which has approved this standard as an ANS, as "substantial agreement reached by directly and materially affected interest categories. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution." Compliance with this standard is voluntary until and unless a legal jurisdiction makes compliance mandatory through legislation. ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review. ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees. The Manager of Standards of ASHRAE should be contacted for: a. interpretation of the contents of this Standard, b. participation in the next review of the Standard, c. offering constructive criticism for improving the Standard, or d. permission to reprint portions of the Standard. DISCLAIMER ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. 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In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE. Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine CONTENTS ANSI/ASHRAE/ACCA Standard 1 83-2007 (RA 201 4), Peak Cooling and Heating Load Calculations in Buildings Except Low-Rise Residential Buildings SECTION PAGE Foreword ..... 2 1 Purpose ..... 2 2 Scope ..... 2 3 Definitions, Abbreviations, and Acronyms ..... 2 4 Compliance..... 3 5 Weather Data and Indoor Design Conditions ..... 3 6 Cooling Load Method ..... 4 7 External Heat Gains ..... 4 8 Internal Heat Gains..... 4 9 Heating Load ..... 4 1 0 System Cooling and Heating Loads ..... 4 Informative Appendix A: Choice of Methods..... 5 Informative Appendix B: Recommended ASHRAE/ACCA Compliance Form for Standard 1 83-2007 ..... 6 NOTE Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE Web site at www.ashrae.org/technology. © 201 4 ASHRAE 1 791 Tullie Circle NE · Atlanta, GA 30329 · www.ashrae.org · All rights reserved. ASHRAE is a registered trademark of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. ANSI is a registered trademark of the American National Standards Institute. Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine (This foreword is not a part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subj ect to public review or a consensus process. Unresolved obj ectors on informative material are not offered the right to appeal at ASHRAE or ANSI.) FOREWORD Standard 183 was created in a collaborative effort between ASHRAE and ACCA, the Air Conditioning Contractors of America. It establishes minimum requirements for performing peak cooling and heating load calculations for buildings except low-rise residential buildings. Although there are many methods available to perform peak cooling and heating load calculations, the intent of this standard is to establish a minimum level ofrequirements that is as inclusive ofas many methods as possible while still being restrictive enough to mandate an appropriate level of care and accuracy. An accurate estimate of peak cooling or heating load requires not only that a sound method be used but also that inputs to the method are reasonable and realistic (the execution ofthe method). The heat transfer interactions that occur outside and inside a conditioned building are complex and involve many interrelated variables. All load calculation methods therefore involve some level ofsimplification ofthe actual interactions among these variables to allow practical solutions to these very complex problems. The requirements in this standard that relate to the load calculation method are technical to the extent that they address these simplifications of the fundamental heat transfer interactions. Ifa method oversimplifies the problem, then an inaccurate load estimate can result. Complying with this standard requires knowledge of the underlying principles of the methods used and the techniques that these methods use to address the fundamental heat transfer interactions. There is a distinction in this standard between zone load and system load. This standard is intended to address the calculation of zone load, but it is impossible to completely decouple the system load or capacity calculation from the zone load calculation. Systems and the processes to calculate their loads or capacities vary dramatically. Some aspects of the overall approach to systems are included in this standard, but the standard is not intended to be a comprehensive or detailed discussion ofhow to calculate system loads. Users of this standard are cautioned not to confuse zone heat gain with system sizing. This is a reaffirmation ofStandard 183-2007. This standard was prepared under the auspices ofthe American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). It may be used, in whole or in part, by an association or government agency with due credit to ASHRAE. Adherence is strictly on a voluntary basis and merely in the interests of obtaining uniform standards throughout the industry. This version of the reaffirmation includes no changes. Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine 1 . PURPOSE This standard establishes requirements for performing peak cooling and heating load calculations for buildings except low-rise residential buildings. 2. SCOPE This standard sets minimum requirements for methods and procedures used to perform peak cooling and heating load calculations for buildings except low-rise residential buildings. 3. DEFINITIONS, ABBREVIATIONS, AND ACRONYMS 3.1 Terms Defined in this Standard beam solar: the component of solar radiation received from the sun without being scattered by the atmosphere or reflected by other surfaces. building location: for purposes of load calculation, the building's latitude and longitude or the country, state, and city. convective heat gain: the portion of a heat gain that is transferred by convection to air inside a building. cooling load: a general term used to refer to the sensible and latent cooling load of a zone or an HVAC system. diffuse solar: the component of solar radiation composed of the sky diffuse and ground diffuse solar flux. design conditions: for outdoor conditions, the air temperature, humidity, and solar flux values used to calculate cooling and heating loads. For indoor conditions, the air temperature and/or humidity requirements for a zone or a building. diversity: adjustments to internal heat gains made to account for the fact that the instantaneous heat output of all loadproducing items (i.e., occupants, lighting, appliances, devices, equipment) is normally less than the maximum output for the same set of items. The instantaneous load is discounted for factors such as on-off cycles, occupancy schedules, duty cycles, and reduced power input. fenestration: windows, skylights, and doors. Fenestration is typically composed of multiple components or assemblies, such as framing, glazing, dividers, and mullions. flux: energy flow rate per unit surface area. ground diffuse solar: the component of solar radiation received after being reflected by ground surfaces surrounding a building. heat gain: the rate at which heat enters a surface, an airstream, or a zone. Heat gain is classified by its mode (convective or radiant) and by whether it is a sensible or latent gain. The radiant portion of heat gain becomes cooling load by a conversion process over time that causes a delay between the time the heat gain occurs and the time the heat is converted to cooling load. heating load: for zones, the rate at which heat must be added to maintain indoor design conditions. For systems, the rate at which heat must be added to a transport fluid (air, water) to maintain indoor design conditions. incident solar flux: the beam, sky diffuse, and ground diffuse solar flux received by fenestration and opaque building surfaces. infiltration: the flow of outdoor air into a building through cracks and other unintentional openings and through normal use of exterior doors for entrance and egress. internal equipment: equipment that is located in the zone or building and that generates heat (e.g., computers, copy machines, laboratory equipment, kitchen equipment, motors, factory machinery). internal heat gain: heat that is generated from sources that are within the zone (e.g., people, lights, equipment). latent cooling load: for zones, the rate at which moisture must be removed from the zone to maintain indoor design humidity. For systems, the rate at which heat is removed at a cooling coil or dehumidifying device in order to condense or remove moisture from the supply airstream or dehumidified space. sensible cooling load: for zones, the rate at which heat must be removed from the zone to maintain indoor design temperature. For systems, the rate at which heat is removed at the apparatus in order to reduce the temperature of the supply airstream. sensible heat gain: an energy gain to a zone that occurs when heat is directly added to the zone through convection, conduction, and/or radiation. sky diffuse solar: the component of solar radiation whose character has been changed by scattering in the atmosphere. solar heat gain: energy from the sun that enters a zone through fenestration. thermal mass effect: the ability ofa material layer to store heat and the ability of an opaque envelope component to dampen and delay transfer of heat. time delay: the time interval between heat transfer events in a zone or building. temperature-driven heat gain: the heat gain or loss due to the difference between the indoor and outdoor temperatures. latent heat gain: an energy gain to a zone that occurs when moisture is added to the air in the zone. zone: a room or space or group ofrooms or spaces in a building. load factor: the ratio ofactual power use to rated or nameplate power for equipment. For example, equipment with a nameplate rating of 250 W may have a peak measured power of 1 80 W. In this example, an internal heat gain of 1 80 W should be used rather than 250 W for load calculations. 3.2 Abbreviations and Acronyms Used in This Standard low-rise residential: single-family houses, multi-family structures of three stories or fewer above grade, and manufactured houses, which includes both mobile homes and modular homes. method: a procedure used to calculate the cooling or heating load of a zone or building. Load calculation methods that comply with this standard include, but are not limited to: • the cooling load temperature difference/cooling load factor (CLTD/CLF) family of methods, • total equivalent temperature difference/time averaging (TETD/TA) methods, • transfer function methods (TFMs), • radiant time series (RTS) methods, and • heat balance (HB) methods. Note: Recommendations on how to choose a method are provided in Informative Appendix A. peak load: the largest cooling load or heating load calculated based on design conditions. radiant heat gain: the portion ofa heat gain that is transferred by thermal radiation from the source of the heat gain to surfaces within the zone or the building. reheat: heat used to raise the temperature ofair after the air has been mechanically cooled. Reheat is often discouraged by energy codes. Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine zone load: the cooling load or heating load occurring in a zone. HVAC: heating, ventilating, and air conditioning. 4. COMPLIANCE 4.1 Where validation of compliance with this standard is part of a permit or other review process, documentation shall be provided indicating that the method used, the assumptions, and the execution of the method meet the requirements of this standard. Note: The recommended format for this documentation is shown in Informative Appendix B. 4.2 The method shall utilize data and perform calculations in a manner that meets the requirements of this standard. 4.3 Inputs to a method shall be determined in a manner that meets the requirements of this standard. 5. WEATHER DATA AND INDOOR DESIGN CONDITIONS 5.1 Indoor design conditions shall be established by owner criteria, local codes, or comfort criteria. 5.2 Cooling calculations shall use values ofoutdoor air temperature and humidity for the building use, the building location, time of year, and time of day. 5.3 Solar radiation for cooling calculations shall use solar flux conditions for the building location, time of year, time of day, and orientation of the surface receiving the solar radiation. 5.4 Heating calculations shall use values ofoutdoor air temperature for the building use and the building location. 6. COOLING LOAD METHOD 8.4 6.1 The calculation method shall account for convective heat gain, radiant heat gain, and the thermal mass effect on cooling load. 8.5 The cooling load calculation shall address the hours of the day and months of the year necessary to establish the peak cooling load and the hour at which it occurs. The peak load may occur at any of a number of possible hours. 6.2 7. EXTERNAL HEAT GAINS 7.1 Fenestration 7. 1 . 1 The calculation method shall account for both temperature-driven heat gain and solar heat gain. Evaluation of heat gains from lighting and internal equipment shall consider their operation schedules and load factors. Evaluation of heat gains from lighting equipment shall account for heat transfer to the ceiling plenum (if applicable). 9. HEATING LOAD Heating load calculations shall be based on peak temperature-driven heat loss through the building envelope. 9.1 9.2 Credit for solar heat gains and for internal heat gains shall not be included as part of the calculation of the peak heating load. Where constant or permanent internal heat gains are known to be present in the zone to be heated, the peak heating load may be adjusted to account for these available heat gains. Exception: 7.1 .2 The temperature-driven heat gain shall be calculated using the thermal performance of the entire fenestration assembly. 7.1 .3 The solar heat gain shall be calculated from incident solar flux and the solar performance of the entire fenestration assembly. 7.1 .4 The solar heat gain calculation shall account for interior shading from devices such as blinds, shades, or drapes when such devices are present. The solar heat gain calculation shall account for exterior shading when present. 7.1 .5 Opaque Building Envelope. The heat gain of opaque building envelope components shall account for solar radiation and temperature-driven heat gain, shall consider the thermal performance ofmaterials in the opaque building envelope component, and shall consider the time delay occurring as heat is conducted through the material layers. 7.2 7.3 Infiltration. The calculation method shall account for separate sensible and latent infiltration heat gains when infiltration exists. 8. INTERNAL HEAT GAINS 8.1 Internal heat gains shall be included in the cooling load. 9.3 Infiltration shall be accounted for when it exists. 9.4 Heating load calculations shall account for cold processes or equipment in the zone that absorbs heat (for example, some refrigerated cases). 1 0. SYSTEM COOLING AND HEATING LOADS 1 0.1 Cooling and heating system loads shall account for the capacity required to accomplish psychrometric processes. Psychrometric processes include conditioning for reheat, dehumidification, humidification, and air mixing. 1 0.2 Energy from fans and pumps used in cooling systems shall be accounted for in system cooling loads. Heat transfer through piping and ductwork walls shall be accounted for in determining system loads. 1 0.3 1 0.4 Duct leakage shall be considered in determining system load. Outside air cooling and heating loads shall be calculated for the particular system configuration and weather data. 1 0.5 8.2 Sensible and latent heat gain components of all internal gain contributors shall be considered separately. Diversity due to variations in actual occupancy, lighting, or equipment use shall be considered in determining system cooling loads. 8.3 Evaluation of heat gains from the occupants shall take into account the number of occupants, their activity levels, and the occupancy schedule. 1 0.7 Based on the specific type of system designed, the system cooling and heating loads shall account for inherent system inefficiencies such as damper leakage. Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine 1 0.6 (This appendix is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subj ect to public review or a consensus process. Unresolved obj ectors on informative material are not offered the right to appeal to ASHRAE or ANSI.) INFORMATIVE APPENDIX A CHOICE OF METHODS Modeling the heat interactions in a building is complex, often involving many interrelated variables. It would be impossible for practical calculations to address all interactions explicitly. All load calculations, therefore, involve varying levels of simplification of the fundamental interactions. Simplified methods are not necessarily less accurate. In fact, according to the 2009 ASHRAE Handbook—Fundamentals , the accuracy of cooling load calculations in practice depends primarily on the availability of accurate information and the design engineer's judgment in the assumptions made in interpreting the available data. Those factors have much greater influence on a project's success than does the choice of a particular cooling load calculation method. (Chapter 1 8) This statement is valid for all simplified load calculations, whether for heating or cooling. It should be noted, however, that simplified methods inherently involve more simplifications and fixed assumptions than more rigorous methods. If the building or zone in ques- Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine tion has components that match the embedded assumptions of a simplified method, then the method can be used to obtain an accurate result. On the other hand, if the components do not match the assumptions that were made in deriving the simplified method, then the results may not be accurate. With any method—but in particular with more simplified methods—it is important to understand the specific assumptions that are embedded and whether these approximate the building being considered. This standard includes a specific reference to five

commonly known load calculation methods (see Section 3, Definitions, Abbreviations and Acronyms). These specific methods are indicated as examples and are not intended to be an exclusive list. It is expected that newer and hopefully better methods will continue to be developed. New methods or existing methods that are not specifically referenced are able to meet the requirements ofthis standard as long as they properly consider the load elements described in this standard. Many methods can be practically executed only by using a computer, but it is recognized that manual methods have a place in the industry as well. Computerized methods can quickly check all hours in a year to identify the specific time of the peak cooling load for each building and/or individual zone. When applying a manual method, it is not practical to perform every iteration to check all hours for all zones. The peak hours can usually be determined by applying applicable experience and professional judgment to check a limited number of hours. If the time of the peak cooling load is not properly identified due to poor judgment or an insufficient number of iterations, then a significant error could result. (This appendix is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subj ect to public review or a consensus process. Unresolved obj ectors on informative material are not offered the right to appeal to ASHRAE or ANSI) INFORMATIVE APPENDIX B RECOMMENDED ASHRAE/ACCA COMPLIANCE FORM FOR STANDARD 1 83 Building or Zone Name: Location or Address: Design Conditions: Cooling Heating Weather Data Used Indoor Dry Bulb Design Temperature Indoor Design Relative Humidity Load Calculation Method: (Indicate which of the following methods is used.) J CLTD/CLF—Cooling Load Temperature Difference/Cooling Load Factor methods J HB—Heat Balance methods J TETD/TA—Total Equivalent Temperature Difference/Time Averaging methods J TFM—Transfer Function Methods J RTS—Radiant Time Series methods J OTHER (please specify) _____ The undersigned attests that the above information is correct and that the procedures used to perform the load calculations comply with ANSI/ASHRAE/ACCA Standard 1 83. Signed: Submitted by: Copyright American Society of Heating, Refrigerating and Air-Conditioning Engine Date: Date: 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. ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating standards and guidelines. 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. ASHRAE · 1 791 Tullie Circle NE · Atlanta, GA 30329 · www.ashrae.org About ASHRAE ASHRAE, founded in 1 894, is an international building technology society with more than 50,000 members worldwide. The Society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability. Through research, standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's built environment today. For more information or to become a member of ASHRAE, visit www.ashrae.org. To stay current with this and other ASHRAE standards and guidelines, visit www.ashrae.org/standards. Visit the ASHRAE Bookstore ASHRAE offers its standards and guidelines in print, as immediately downloadable PDFs, on CD-ROM, and via ASHRAE Digital Collections, which provides online access with automatic updates as well as historical versions of publications. Selected standards are also offered in redline versions that indicate the changes made between the active standard and its previous version. For more information, visit the Standards and Guidelines section of the ASHRAE Bookstore at www.ashrae.org/bookstore. IMPORTANT NOTICES ABOUT THIS STANDARD To ensure that you have all of the approved addenda, errata, and interpretations for this standard, visit www.ashrae.org/standards to download them free of charge. Addenda, errata, and interpretations for ASHRAE standards and guidelines are no longer distributed with copies of the standards and guidelines. ASHRAE provides these addenda, errata, and interpretations only in electronic form to promote more sustainable use of resources. 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