ANSI/AHRI Standard 1330-2024 (SI)

Performance Rating for Radiant Output of Gas Fired Infrared Heaters

Approved American National Standard

ANSI

AHRI

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ICS Code: 97.100

Note:

This standard supersedes ANSI/AHRI 1330-2015 (SI).

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Intent

This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors, and users.

Review and Amendment

This standard is subject to review and amendment as technology advances.

2024 Edition

This edition of ANSI/AHRI Standard 1330 (SI), *Performance Rating for Radiant Output of Gas Fired Infrared Heaters*, was prepared by the AHRI 1330 Standard Work Group and the Infrared Heaters Standards Technical Committee. The standard was approved by the Heating Standards Subcommittee on 4 March 2024. This standard was approved as an American National Standard (ANS) on 3 April 2024.

Origin and Development of ANSI/AHRI Standard 1330

In 2011, the Infrared Product Section identified the need for a North American standard for both high and low intensity infrared heaters by adopting Method B of the European standards and developed the first edition that was published in 2015. This is the first revision.

Summary of Changes

ANSI/AHRI Standard 1330-2024 (SI) contains the following updates to the previous edition:

- Added gas-fired multi-burner continuous low intensity radiant tube heaters to the scope
- Use a radiant emission value (REV) instead of an infrared factor
- Updated radiometer equipment and calibration requirements.
- Added references to updated European standards

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Committee Personnel

AHRI 1330 Standard Work Group

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	Stephan Richter	Alternate
Canadian Standards Association	Judd Smith	Primary
	Doug Bennett	Alternate
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	Matt Lattanzi	Nonvoter
Roberts-Gordon, LLC	Mark Murdoch	Nonvoter
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Solaronics, Inc.	Tom Martelle	Nonvoter
	Nick Henderson	Nonvoter
Superior Radiant	George File	Nonvoter
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Panos Fykas		AHRI Staff Liaison

AHRI 1330 Standard Work Group Scope:

The Infrared Heater SWG is responsible for the development and maintenance of ANSI/AHRI 1330 (SI).

Out of scope for this SWG is any product which does not use infrared technology to directly heat conditioned space.

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Infrared Heaters Standards Technical Committee Scope:

This committee shall have responsibility for the development and maintenance of AHRI standards and guidelines pertaining to infrared heater products.

Out of scope for this Standards Technical Committee is any product which does not use infrared technology to directly heat conditioned space.

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These lists represent the membership at the time the Standards Work Group, Standards Technical Committee, and Standards Subcommittee were balloted on the final text of this edition. Since that time, changes in the membership may have occurred. Membership on these committees shall not in and of itself constitute an endorsement by the committee members or their employers of any document developed by the committee on which the member serves.

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Participant	Company / Organization	Interest Category Classification
Ronald Balneg	California Energy Commission	Regulatory Agency
Philip Cantin	mmic Medical Systems	Consumer/User
Paul Haydock	Carrier Corporation	Product Manufacturer
Caroline Henley	UL Solutions	Testing Laboratory
Jim Kendzel	American Supply Association	General Interest
Stephen Kowalski	Oak Ridge National Laboratory	Testing Laboratory
Jered Ledford	Olson Plumbing and Heating	Consumer/User
Timothy Matthews	Lee Company	General Interest
Reza Mossavi	Viessmann Manufacturing Company (U.S.) INC.	Product Manufacturer
Aniruddh Roy	Energy Solutions	General Interest

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Full document details: AHRI Standard 1330-2024 (SI) - Performance Rating for Radiant Output of Gas Fired Infrared Heaters

TABLE OF CONTENTS

Page

SECTIONS

Section 1. Purpose 1
Section 2. Scope 1
Section 3. Definitions 1
3.1 Expression of Provisions 1
3.2 Standard Specific Definitions 1
Section 4. Classifications 4
Section 5. Test Requirements 4
5.1 Rating Requirements 4
5.2 Standard Ratings 4
Section 6. Rating Requirements 4
Section 7. Minimum Data Requirements for Published Ratings 5
Section 8. Marking and Nameplate Data 5
8.1 Radiant Tube Infrared Heaters 5
8.2 Multi-burner Branch Heaters 5
Section 9. Conformance Conditions 5
Section 10. Nomenclature 6

FIGURES

Figure 1 Measuring Grid 2
Figure 2 Radiation Reference Plane 3
Figure 3 High Intensity Radiation Emitter Plane 4
Figure 4 Low Intensity Radiation Emitter Plane 4
Figure 5 Radiation Reference Plane and Measuring Plane of a Horizontally Mounted High Intensity Infrared Heater 9
Figure 6 Radiation Reference Plane and Measuring Plane of an Angle Mounted High Intensity Infrared Heater 10
Figure 7 Measuring Plane of a Horizontally Mounted Low Intensity Infrared Heater 10
Figure 8 Measuring Plane of an Angle Mounted Low Intensity Infrared Heater 10
Figure 9 Example of Format to Record Test and Appliance Data 18
Figure 10 Example of Format to Record Radiometer Technical Data 18
Figure 11 Example of Format for Recording Measuring Plane Technical Data 19
Figure 12 Example of Format for Recording Test Ambient Conditions Data 19
Figure 13 Example of Format for Recording Gas/Heat Input Data 19
Figure 14 Example of Format for Recording Absorption of Water Vapor and CO_2 Data 20
Figure 15 Example of Format for Irradiation Measurement Data 20
Figure 16 Continuous Low Intensity Radiant Tube Heaters in Series Configuration 22
Figure 17 Continuous Low Intensity Radiant Tube Heaters in Parallel Configuration 23
Figure 18 Branch A 24
Figure 19 Branch B 24
Figure 20 Example of Two Branches Identical to Branch A 25

Documents
Document Sharing Hub
Full document details: AHRI Standard 1330-2024 (SI) - Performance Rating for Radiant Output of Gas Fired Infrared Heaters

Figure 21 Example of Branch A and Branch B 26
Figure 22 First Multi-burner Branch Segment A and Segment B 26
Figure 23 Example Using Two Measured Segments Shorter Than or Equal to Segments Measured 27
Figure 24 Example Parallel Multi-burner Branch 28
Figure 25 Methods for Setting Up a Parallel Segment to Test as Individual Segment 29
Figure 26 Application for System Calculations for Parallel Multi-burner Using Three Measured Segments 30

TABLES

Table 1 Nomenclature 6
Table 2 Cross-References for Calculation of Radiant Emission Value 12
Table 3 Example of Recorded Data for Branch A 24
Table 4 Example of Recorded Data for Branch B 25
Table 5 Tool for System Calculation for Combination of Branch A and Branch B 25
Table 6 Example of Recorded Data for Multi-burner Branch Segment A 27
Table 7 Example of Recorded Data for Multi-burner Branch Segment B 27
Table 8 Tool for System Calculation for Two Segments 28
Table 9 Example of Recorded Data for Parallel Multi-burner Branch 28
Table 10 Example of Recorded Data for Parallel Multi-burner with Individual Segment 30 kW at 10 m Length 29
Table 11 Example Recorded Data for Parallel Multi-burner with Individual Segment 30 kW at 14 m Length 30
Table 12 Example Recorded Data for Parallel Multi-burner with Individual Segment 35 kW at 16 m Length 30
Table 13 Tool for System Calculation for Parallel Multi-burner Using Three Measured Segments 31

APPENDICES

Appendix A. References – Normative 7
Appendix B. References – Informative 8
Appendix C. Methods of Testing for Rating Infrared Heaters – Normative 9
Appendix D. Radiometer Equipment – Normative 16
Appendix E. Radiometer Calibration – Normative 17
Appendix F. Radiant Heat Output Data Examples of Data Recording Formats – Informative 18
Appendix G. Tolerances of Equipment Measurements – Normative 21
Appendix H. System Arrangement – Informative 22
Appendix I. Multi-burner Continuous Low-intensity Heater Example Calculations – Informative 24

Documents
Document Sharing Hub
Full document details: AHRI Standard 1330-2024 (SI) - Performance Rating for Radiant Output of Gas Fired Infrared Heaters

PERFORMANCE RATING STANDARD FOR RADIANT OUTPUT OF GAS FIRED INFRARED HEATERS

Section 1. Purpose

This standard establishes definitions, test requirements, rating requirements, nomenclature, minimum data requirements for *published ratings*, marking and nameplate data, and conformance conditions for i*nfrared heaters*.

Section 2. Scope

This standard applies to *infrared heaters* that are gas-fired *high-intensity infrared heaters*, gas-fired *low-intensity infrared heaters*, and gas-fired multi-burner continuous *low intensity* radiant tube heaters with inputs up to and including 117.5 kW per burner intended for installation and heating of outdoor or indoor spaces.

This standard does not apply to heaters that do not radiate their energy into a single *measuring plane*.

Note: 117.5 kW (400,000 Btu/hr).

Section 3. Definitions

All terms in this document shall follow the standard industry definitions in the ASHRAE Terminology website unless otherwise defined in this section.

3.1 Expression of Provisions

Terms that provide clear distinctions between requirements, recommendations, permissions, options, and capabilities.

3.1.1 “Can” or “cannot”

Express an option or capability.

3.1.2 “May”

Signifies a permission expressed by the document.

3.1.3 “Must”

Indication of unavoidable situations and does not mean that an external constraint referred to is a requirement of the document.

3.1.4 “Shall” or “shall not”

Indication of mandatory requirements to strictly conform to the standard and where deviation is not permitted.

3.1.5 “Should” or “should not”

Indication of recommendations rather than requirements. In the negative form, a recommendation is the expression of potential choices or courses of action that is not preferred but not prohibited.

3.2 Standard Specific Definitions

3.2.1 Calibration Factor

The results of the calibration provided by an ISO 17025 accredited testing/calibration laboratory consisting of a constant (a) and offset (b).

3.2.2 Gross Radiant Coefficient (GRC)

Heat emitted by the appliance through the *radiation reference plane* divided by the gross heat input of the test gas.

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3.2.3 Infrared Heater

A heater that directs the energy output in the form of infrared energy into the area to be heated. Such heaters can be of the vented or unvented type.

3.2.3.1 High-intensity Infrared Heater

An *infrared heater* that has a radiating surface that operates at or above 750°C. This is referred to as a gas-fired overhead luminous radiant heater in the references to European standards.

3.2.3.2 Low-intensity Infrared Radiant Tube Heater

An *infrared heater* that has a radiating surface that operates at temperatures less than 750°C.

3.2.3.2.1 Unitary Infrared Tube Heater

A *low-intensity infrared heater* where combustion takes place within a tube or conduit consisting of a single combustion air blower, flame monitor, and control.

3.2.3.2.2 Multi-Burner Continuous Infrared Tube Heater System

An *infrared heating system* that employs one or more burners, in series or parallel branches, or both, and is connected to a common exhaust.

3.2.4 Multi-burner Branch

A *low intensity* multi-burner continuous radiant tube heater that employs one or more burner segments that only contains the product of combustion generated by this or these segments.

3.2.5 Multi-burner Segment

An individual burner and one or more heat exchanger tubes.

3.2.6 Burner

An individual burner unit incorporating independent flame control and monitoring.

3.2.7 Measuring Cell

The area contained by four adjacent *nodal points* of a *measuring grid*.

3.2.7.1 Measuring Plane

A plane parallel and below the *radiation reference plane*.

3.2.7.2 Measuring Grid

Regular arrangement in the *measuring plane* of straight lines running parallel and perpendicular to the longitudinal axis of the appliance. See Figure 1.

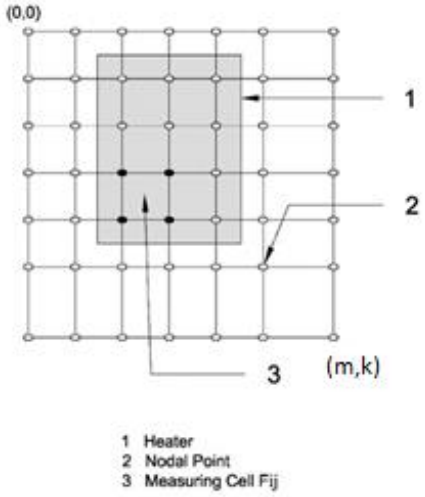


Figure 1 Measuring Grid

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3.2.8 Minimum Angle

The minimum installation angle specified by the manufacturer measured from the horizontal plane.

3.2.9 Nodal Point/Node

The intersection of the perpendicular and parallel grid lines on the *measuring plane* where an individual measurement is recorded. Four adjacent *nodal points* confine a *measuring cell*.

3.2.10 Published Rating

A statement of the assigned values of those performance characteristics, under stated *rating conditions*, where a unit can be chosen to fit the application. These values apply to all units of the same nominal size and type (identification) produced by the same manufacturer. This includes the rating of all performance characteristics shown on the unit or published in specifications, advertising or other literature controlled by the manufacturer, at stated *rating conditions*.

3.2.10.1 Application Rating

A rating based on tests performed at rating conditions other than *standard rating conditions*.

3.2.10.2 Standard Rating

A rating based on tests performed at *standard rating conditions*.

3.2.11 Radiation Reference Plane

Flat surface bounded by the lower edge of the reflector or, in the case where radiant parts project below this lower edge of the reflector, the flat surface touching the lowest radiant part (refer to Figure 2).

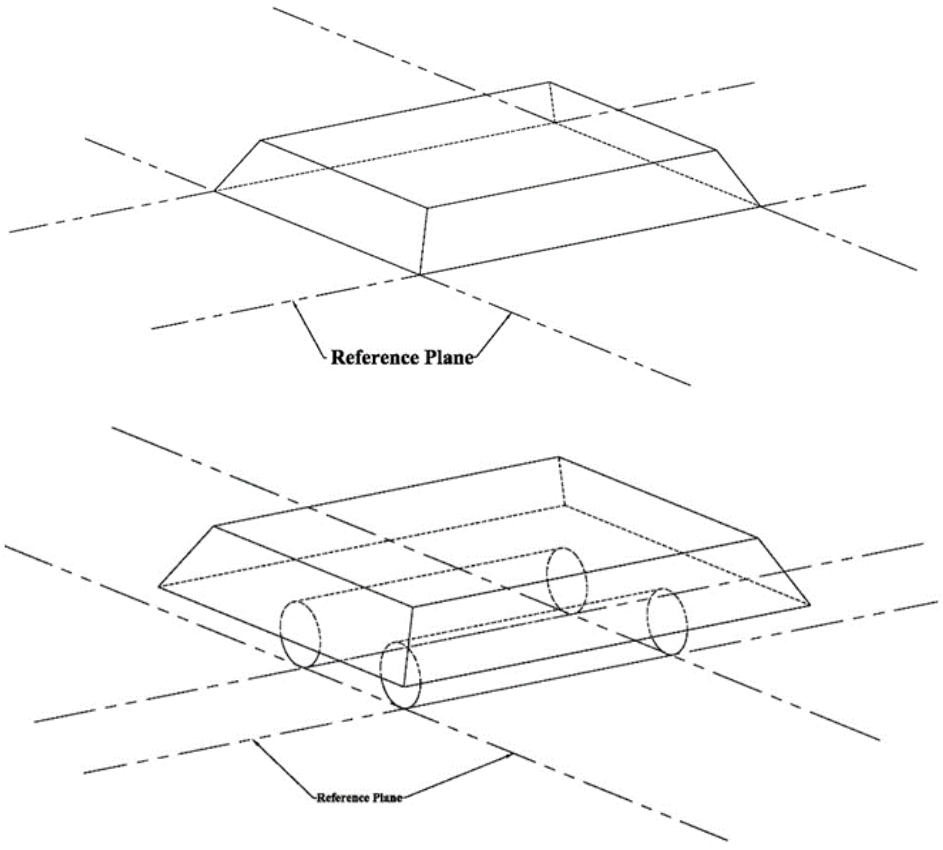


Figure 2 Radiation Reference Plane

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