PD ISO/TR 16822:2016

BSI Standards Publication

Building environment design — List of test procedures for heating, ventilating, air-conditioning and domestic hot water equipment related to energy efficiency

bsi.

National foreword

This Published Document is the UK implementation of ISO/TR 16822:2016.

The UK participation in its preparation was entrusted to Technical Committee RHE/2, Ventilation for buildings, heating and hot water services.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2017

ISBN 978 0 580 85216 9

ICS 91.040.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 September 2017.

Amendments/corrigenda issued since publication

Date	Text affected

PD ISO/TR 16822:2016

TECHNICAL REPORT

ISO/TR 16822

First edition
2016-07-01

Building environment design — List of test procedures for heating, ventilating, air-conditioning and domestic hot water equipment related to energy efficiency

Conception de l'environnement des bâtiments - Liste des procédures d'essai liés à l'efficacité thermique pour les installations de chauffage, ventilation, air conditionné et eau chaude à usage domestique — Équipement de chauffage, de ventilation et de refroidissement — Exigences relatives au rendement d'énergie

Reference number
ISO/TR 16822:2016(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 205, *Building environment design*.

Introduction

The world's energy resources are being consumed at a significant rate that will result in the depletion of known fossil fuel resources within the next century. Combustion of fossil fuels has contributed to the build-up of greenhouse gases in the atmosphere resulting in discernible climate change. The ill effects of climate change have been documented. It is imperative that energy be conserved. The building industry, through its use of energy, accounts for 30 % to 35 % of all fossil fuel usage. Conservation of energy in buildings can result in a slowing down of fossil fuel usage and consequently the build-up of greenhouse gases.

The energy efficiencies of components in HVAC systems are critical factors when determining building overall energy performance. Therefore, it is necessary to define common test methods that are to be used to determine efficiency for space heating, space cooling, and water heating equipment, in order to improve energy conservation. Space heating, space cooling, and water heating equipment are typically regulated by specifying both a measure of efficiency that the equipment must meet and a test method that must be used to determine that measure of efficiency. A technical report containing test procedures and globally relevant standards for the energy-efficiency of products is needed for the proper assessment of building energy performance. This Technical Report will be a useful reference for standards developed by ISO/TC 205 and ISO/TC 163-ISO/TC 205. The ultimate goal of this effort is to develop a set of globally adopted HVAC equipment testing and rating standards under the auspices of ISO.

This Technical Report lists existing HVAC equipment testing and rating procedures from around the world. Standards are listed in two ways, by the standards writing organization and by the type of equipment addressed in the standard. In Clause 2, procedures are listed by the organization that developed the procedure. In Clause 4, procedures are listed by the types of equipment that are covered by the procedure. Procedures are listed to aid in the development of new ISO procedures that may be globally adopted.

TECHNICAL REPORT **ISO/TR 16822:2016(E)**

Building environment design — List of test procedures for heating, ventilating, air-conditioning and domestic hot water equipment related to energy efficiency

1 Scope

This Technical Report lists testing and rating procedures for determining energy efficiency of heating, ventilating, and air conditioning equipment. This Technical Report is applicable to space conditioning and water heating equipment. Testing and rating procedures are listed in two ways.

2 List of procedures by organization

The following documents contain provisions which, through reference in this text, constitute provisions of this Technical Report. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below. For undated references, the latest edition of the document referred to and any updates applies. Members of ISO and IEC maintain registers of currently valid International Standards.

AHRI

AHRI 400 with Addendum 2 Liquid-to-Liquid Heat Exchangers

AHRI 1230, *Performance Rating of Variable Refrigerant Flow (VRF) Multi-split Air-Conditioning and Heat Pump Equipment*

AHRI 1160, *Performance Rating of Heat Pump Pool Heaters*

AMCA

AMCA 500-D-07, *Laboratory Methods of Testing Dampers for Rating*

ANSI

ANSI Z21.47, *Gas-Fired Central Furnaces*

ANSI Z83.8, *Gas Unit Heaters and Duct Furnaces*

AHAM

ANSI AHAM RAC-1, *Room Air-Conditioners*

ASHRAE

ANSI ASHRAE 118.1, *Method of Testing Commercial Gas, Electric and Oil Water Heaters*

ANSI ASHRAE 118.2, *Method of Testing Residential Gas, Electric, and Oil Water Heaters*

ANSI ASHRAE 146, *Method of Testing for Rating Pool Heaters*

ASHRAE Standard 103, M*ethod of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers*

AHRI

AHRI 210/240, *Unitary Air-conditioning and Air Source Heat Pump Equipment*