This is a preview of "ISO 21105-1:2019". Click here to purchase the full version from the ANSI store.

First edition
2019-11

Performance of buildings — Building enclosure thermal performance verification and commissioning —

Part 1: General requirements

Performance des bâtiments — Vérification de la performance thermique de l'enveloppe des bâtiments et mise en service —

Partie 1: Exigences generales

Reference number
ISO 21105-1:2019(E)

© ISO 2019

This is a preview of "ISO 21105-1:2019". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

© ISO 2019 – All rights reserved

This is a preview of "ISO 21105-1:2019". Click here to purchase the full version from the ANSI store.

Contents

Page

Foreword ... **iv**

Introduction ... **v**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and Definitions ... **1**

4 Commissioning process ... **3**

5 Risk assessment to determine the level of BECx ... **5**

6 Levels of BECx program ... **7**

7 Phases of BECx program ... **8**

7.1 General ... 8

7.2 Predesign phase ... 8

7.2.1 General ... 8

7.2.2 Predesign scope of work ... 9

7.2.3 BECx project team ... 9

7.2.4 Owner's project requirements - building enclosure ... 9

7.2.5 BECx introductory meeting ... 10

7.2.6 BECx budget ... 11

7.2.7 BECx tasks ... 11

7.2.8 BECx plan ... 12

7.2.9 Basis of design review ... 12

7.2.10 BECx progress report ... 12

7.3 Design phase ... 12

7.3.1 General ... 12

7.3.2 Design phase meeting ... 12

7.3.3 Level 1 (basic) BECx design review ... 13

7.3.4 Level 2 (intermediate) BECx design review ... 14

7.3.5 Level 3 (comprehensive) BECx design review ... 15

7.3.6 BECx specification ... 16

7.3.7 OPR and Cx plan updates ... 16

7.4 Construction phase ... 16

7.4.1 General ... 16

7.4.2 Construction phase documentation requirements ... 17

7.4.3 Level 3 (comprehensive) review of bid documents ... 17

7.4.4 Construction phase introductory meeting ... 17

7.4.5 Checklists ... 17

7.4.6 Building enclosure maintenance manual ... 17

7.4.7 Construction phase BECx program tasks ... 17

7.5 Occupancy phase ... 20

7.5.1 General ... 20

7.5.2 BE assembly maintenance manual ... 20

7.5.3 Facility staff training ... 20

7.5.4 Ten-month warranty review ... 20

7.5.5 Building enclosure monitoring/on-going commissioning ... 20

7.5.6 Building enclosure continuing facility requirements (CFR) ... 21

7.5.7 Final (updated) BECx report ... 21

Annex A (informative) **Building enclosure risk factors** ... **22**

© ISO 2019 – All rights reserved

This is a preview of "ISO 21105-1:2019". Click here to purchase the full version from the ANSI store.

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 of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 3, *Thermal insulation products*.

A list of all parts in the ISO 21105 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2019 – All rights reserved

This is a preview of "ISO 21105-1:2019". Click here to purchase the full version from the ANSI store.

Introduction

This document is intended to provide a performance verification process to achieve a durable building enclosure that performs in accordance with the contract documents and owner's project requirements. The process described in this document will assist in developing the building owner's project requirements, defining system performance and acceptance attributes, design and construction activities and verifying the installed performance. This process forms the basis for the occupancy and maintenance guide to enable future users and maintenance personnel to maintain the building enclosure, in addition to considering future modifications to the building enclosure.

The commissioning process is developed on behalf of the owner. The process facilitates the owner's transfer of their expectations for the building to the design and construction team. The process is founded in collaboration among all parties comprising the commissioning team. The commissioning process is the most successful when the owner takes an active role in the process. This document engages the owner in commissioning by defining the tasks associated with the process that specifically serve their needs and add value to the project.

In addition to this document, the following documents are planned to be developed in the future:

ISO 21105-2, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 2: Foundation: Waterproofing, Vapour Barrier and Insulation*

ISO 21105-3, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 3: Above Grade Opaque Wall Areas*

ISO 21105-4, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 4: Fenestration*

ISO 21105-5, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 5: Horizontal Waterproofing*

ISO 21105-6, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 6: Roofing (steep slope roofs, low slope roofs, vegetated), including insulation and vapour barrier (as required), HVAC equipment enclosures, roof curbs, elevator penthouses, etc.*

ISO 21105-7, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 7: Sloped Glazing, (skylight, canopy, etc)*

ISO 21105-8, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 8: Interior Partitions providing environmental air barrier separation (such as infection control rooms, laboratories, etc.)*

ISO 21105-9, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 9: stairwells, elevator chases, mechanical pipe chases that penetrate the enclosure, overhead doors/ rolling doors and contiguous interior space providing environmental air barrier separation (such as vestibules, loading docks, etc.)*

ISO 21105-10, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 10: Whole building enclosure, including below grade areas, waterproofing, facades and roof(s). All of the above as applicable*

ISO 21105-11, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 11: Re-commissioning and retro-commissioning of existing building enclosures*

ISO 21105-12, *Performance of buildings — Building enclosure thermal performance verification and commissioning — Part 12: Personnel Qualifications and Training*

© ISO 2019 – All rights reserved