

Second edition
2012-12-15

**Hygrothermal performance of
building components and building
elements — Internal surface
temperature to avoid critical
surface humidity and interstitial
condensation — Calculation methods**

*Performance hygrothermique des composants et parois de
bâtiments — Température superficielle intérieure permettant d'éviter
l'humidité superficielle critique et la condensation dans la masse —
Méthodes de calcul*

Reference number
ISO 13788:2012(E)



Licensee=University of Alberta/5966844001, User=sharabiani, shahramfs
Not for Resale, 12/02/2013 04:36:24 MST

© ISO 2012

.....
.....
.....
.....
.....
.....



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions, symbols and units	1
3.1 Terms and definitions	1
3.2 Symbols and units	3
3.3 Subscripts	4
4 Input data for the calculations	4
4.1 Material and product properties	4
4.2 External boundary conditions	4
4.3 Internal boundary conditions	6
4.4 Surface resistances	6
5 Calculation of surface temperature to avoid critical surface humidity	7
5.1 General	7
5.2 Determining parameters	7
5.3 Design for avoidance of mould growth, corrosion or other moisture damage	7
5.4 Design for the limitation of surface condensation on low thermal inertia elements	8
6 Calculation of interstitial condensation	9
6.1 General	9
6.2 Principle	9
6.3 Limitation of sources of error	10
6.4 Calculation	10
6.5 Criteria used to assess building components	16
7 Calculation of drying of building components	16
7.1 General	16
7.2 Principle	17
7.3 Specification of the method	17
7.4 Criteria used to assess drying potential of building components	17
Annex A (informative) Internal boundary conditions	18
Annex B (informative) Examples of calculation of the temperature factor at the internal surface to avoid critical surface humidity	20
Annex C (informative) Examples of calculation of interstitial condensation	24
Annex D (informative) Example of the calculation of the drying of a wetted layer	34
Annex E (informative) Relationships governing moisture transfer and water vapour pressure	37
Bibliography	40