DIN EN 15759-1:2012-02 (E)

Conservation of cultural property - Indoor climate - Part 1: Guidelines for heating churches, chapels and other places of worship

Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 General aspects to be considered before and during the application of the standard 8
4.1 Overall objective of any intervention 8
4.2 The individual character of the building 8
4.3 Professional support 8
4.4 The effect of installations 8
4.5 Sustainability and energy efficiency 8

5 Assessment of building, interiors and contents 8
5.1 Building structure and its condition 8
5.2 Building interiors and contents 9
5.3 Use of the building 9
5.4 Air exchange 9

6 Specification for indoor climate 9
6.1 Determine the appropriate indoor climate 9
6.2 Establish the historic indoor climate 10
6.3 Indoor climate specification for conservation 10
6.3.1 General 10
6.3.2 Relative humidity 10
6.3.3 Temperature 10
6.3.4 Air movement 11
6.4 Indoor climate specification for thermal comfort 11
6.4.1 General 11
6.4.2 Relative humidity 11
6.4.3 Temperature 11
6.4.4 Air movement 11
6.5 Compromise between thermal comfort and conservation 11

7 Heating strategies 12
7.1 Choice of heating strategy 12
7.2 Basic strategies 12
7.2.1 No heating 12
7.2.2 Conservation heating 13
7.2.3 Heating for thermal comfort 13
7.3 Distribution in space 13
7.3.1 General heating 13
7.3.2 Local heating 13
7.4 Distribution in time 13
7.4.1 Continuous heating 13
7.4.2 Intermittent heating 14
7.4.3 Mixed mode heating 14

8 Heating systems and their application ... 14
8.1 Warm-air heating ... 14
8.1.1 General ... 14
8.1.2 Centralised warm-air heating system ... 14
8.1.3 Decentralised warm-air heating system ... 14
8.1.4 Application ... 15
8.1.5 Thermal comfort ... 15
8.1.6 Conservation ... 15
8.2 Infrared heating ... 15
8.2.1 General ... 15
8.2.2 IR heating from gas combustion ... 15
8.2.3 IR heating from electric tubular and halogen quartz heaters ... 16
8.2.4 Thermal comfort ... 16
8.2.5 Conservation ... 16
8.2.6 Application ... 16
8.3 Radiators ... 16
8.3.1 General ... 16
8.3.2 Thermal comfort ... 16
8.3.3 Conservation ... 16
8.3.4 Application ... 16
8.4 Wall heating through pipes mounted in or on the inside of the walls ... 17
8.4.1 General ... 17
8.4.2 Thermal comfort ... 17
8.4.3 Conservation ... 17
8.4.4 Application ... 17
8.5 Under floor heating ... 17
8.5.1 General ... 17
8.5.2 Thermal comfort ... 17
8.5.3 Conservation ... 17
8.5.4 Application ... 18
8.6 Pew heating ... 18
8.6.1 General ... 18
8.6.2 Thermal comfort ... 18
8.6.3 Conservation ... 18
8.6.4 Application ... 18
8.6.5 Pew heating systems ... 18

9 Implementation ... 19

10 Evaluation ... 20

11 Comments on the application of this standard ... 20

Annex A (informative) Flow chart giving an overview of the standard ... 21

Bibliography ... 22