

Table of contents

Foreword	iii
Introduction	iv
1 Scope of application	1
2 List of symbols and definitions	2
2.1 List of symbols	2
2.2 Definitions	4
3 Background and motivation for alternative target reliability levels for existing structures	7
3.1 Introduction	7
3.2 Economic considerations	9
3.3 Human safety considerations	14
3.4 Combination of economic and human safety considerations	21
4 Partial factor methods for existing concrete structures	26
4.1 General framework	26
4.2 The design value method	37
4.3 The adjusted partial factor method (APFM)	49
5 Numerical validation	73
5.1 Model uncertainty factors	73
5.2 Actions	73
5.3 Resistance	76
5.4 Reliability analysis	79
6 Discussion	85
6.1 Comparison of alternative approaches	85
6.2 Application limits	87
6.3 Note on combinations of variable actions	93

7	Application example	93
7.1	Introduction	93
7.2	Input data for the application example	94
7.3	Determination of partial factors for the assessment of the existing structure	96
7.4	Determination of the load-bearing capacity	99
8	References	100
Annex A	Background information on probabilistic models	105
A.1	Overview	105
A.2	Derivation of probabilistic models	105
A.3	Uncertainties of resistance models	110
Annex B	Background information on the calibration of the adjusted partial factor method	119
B.1	Calibration of adjustment factors for material properties	119
B.2	Calibration of adjustment factors for permanent actions	120
B.3	Calibration of adjustment factors for variable actions	122