

ISO 12494:2017-03 (E)

Atmospheric icing of structures

Contents		Page
Foreword		v
Introduction		vii
1	Scope	1
2	Normative references	2
3	Terms and definitions	2
4	Symbols	3
5	Effects of icing	4
5.1	General	4
5.2	Static ice loads	4
5.3	Wind action on iced structures	4
5.4	Dynamic effects	4
5.5	Damage caused by falling ice	5
6	Fundamentals of atmospheric icing	5
6.1	General	5
6.2	Icing types	6
6.2.1	General	6
6.2.2	Glaze	8
6.2.3	Wet snow	8
6.2.4	Rime	8
6.2.5	Other types of ice	9
6.3	Topographic influences	9
6.4	Variation with height above terrain	10
7	Icing on structures	11
7.1	General	11
7.2	Ice classes	11
7.3	Definition of ice class, IC	12
7.4	Glaze	12
7.4.1	General	12
7.4.2	Glaze on lattice structures	12
7.5	Rime	13
7.5.1	General	13
7.5.2	Rime on single members	15
7.6	Rime on lattice structures	18
7.6.1	General	18
7.6.2	Direction of ice vanes on the structure	19
7.6.3	Icing on members inclined to the wind direction	19
8	Wind actions on iced structures	20
8.1	General	20
8.2	Single members	20
8.2.1	General	20
8.2.2	Drag coefficients for glaze	21
8.2.3	Drag coefficients for rime	23
8.3	Angle of incidence	27

8.4	Lattice structures	27
9	Combination of ice loads and wind actions	28
9.1	General	28
9.2	Combined loads	28
10	Unbalanced ice load on guys	29
11	Falling ice considerations	30
	Annex A (informative) Formulae used in this document	32
	Annex B (informative) Standard measurements for ice actions	35
	Annex C (informative) Theoretical modelling of icing	39
	Annex D (informative) Climatic estimation of ice classes based on weather data	50
	Annex E (informative) Hints on using this document	53
	Bibliography	57