

DIN SPEC 67600:2013-04 (E)

Biologically effective illumination - Design guidelines

Contents		Page
Foreword		4
Introduction		5
1	Scope	8
2	Terms and definitions	8
3	Integrative design	9
4	Target quantities	10
5	Criteria for biologically effective illumination	10
5.1	General	10
5.2	Spectral composition of light	11
5.2.1	General	11
5.2.2	Spectral evaluation of light sources	13
5.2.3	Changes in the spectrum during transmission	13
5.2.4	Changes in the spectrum during reflection	17
5.3	Illuminance (irradiance)	18
5.4	Geometric arrangement of light	19
5.4.1	General	19
5.4.2	Area and solid angle	19
5.4.3	Direction of light	19
5.5	The dynamics of light	20
5.5.1	General	20
5.5.2	Light that is adapted to the daylight	20
5.5.3	Light that is adapted to the seasons	21
5.5.4	Duration of exposure to light	22
5.5.5	Spectral and spatial distribution of light over time	22
5.5.6	Rapid changes in light	22
5.6	The energy efficiency of biologically effective illumination	22
6	Lighting design for special structures	23
6.1	General	23
6.2	Training establishments and schools	24
6.2.1	General	24
6.2.2	Classrooms, general	24
6.2.3	Adult education	25
6.3	Offices	26
6.3.1	General	26
6.3.2	Office spaces	27
6.3.3	Conference and meeting rooms	28
6.3.4	Break rooms	28
6.3.5	Entrance areas and corridors	28
6.4	Control rooms	28
6.5	Homes for the elderly and nursing homes	29
6.5.1	General	29
6.5.2	Central communal areas and "nursing oases"	29
6.5.3	Private rooms in which care is provided	31
6.5.4	Bathrooms	31
6.5.5	Corridors	31

6.5.6	Caring for people suffering from dementia	32
6.6	Health care premises	32
6.6.1	General	32
6.6.2	Wards and maternity wards	32
6.6.3	Staff rooms and staff offices	33
6.6.4	Multi-purpose rooms, general communal areas, and corridors	33
6.6.5	Post-anæsthesia recovery rooms	33
6.6.6	The special significance of emergency cases	33
6.7	Private living spaces	33
6.8	Hotel rooms	33
7	Structures where shift work takes place (general)	34
7.1	General	34
7.2	Shifting the circadian phase	34
7.3	Stabilization of the circadian phase combined with activation in critical situations	35
8	Verification procedures, briefing, and maintenance schedule	37
Annex A (informative) Schedule of lighting recommendations for the biological effects of light		38
A.1	Composition of the tables	38
A.2	Schedule of indoor areas, communal areas, visual task areas or activity areas	39
A.3	Lighting recommendations for indoor areas, visual task areas or activity areas	41
Bibliography		67