

Escape route and open area duration may be extended from 5s to 15s in premises for the most part likely to be occupied by persons who are familiar with them

France (CEN 1838:1999)

Certified luminaires only may be used

On escape routes maximum spacing of luminaires is 1.5m

For open areas 5lm/m² (luminaire lumens) is required and luminaires may not be spaced more than 4 times their mounting height apart, with a minimum of 2 luminaires per room

Therefore, whilst these values may be used for guidance local regulations should be consulted.

4.5 Roads

For road lighting the lighting criteria are selected dependant upon the class of road being lit. The class has a range of sub-classes, from the strictest to the most relaxed, and these are chosen dependant upon factors, such as typical speed of users, typical volumes of traffic flow, difficulty of the navigational task, etc. The basic lighting classes are defined as:

ME This class is intended for users of motorised vehicles on traffic routes. In some countries this class also applies to residential roads. Traffic speeds are medium to high. The ME classes go from ME1 to ME6, with ME1 defining the strictest requirements. For wet road conditions the MEW classes go from MEW1 to MEW6.

KEY	E _{min}	-	minimum illuminance
	E _m	-	maintained average illuminance
	L _m	-	maintained average luminance
	U _o	-	overall uniformity
	U _l	-	longitudinal uniformity
	TI	-	threshold increment
	SR	-	surround ratio

	Luminance			SR	TI
	L _m	U _o	U _l		
ME1	≥ 2.0 cd/m ²	≥ 0.40	≥ 0.70	≥ 0.50	≤ 10%
ME2	≥ 1.5 cd/m ²	≥ 0.40	≥ 0.70	≥ 0.50	≤ 10%
ME3A	≥ 1.0 cd/m ²	≥ 0.40	≥ 0.70	≥ 0.50	≤ 15%
ME3B	≥ 1.0 cd/m ²	≥ 0.40	≥ 0.60	≥ 0.50	≤ 15%
ME3C	≥ 1.0 cd/m ²	≥ 0.40	≥ 0.50	≥ 0.50	≤ 15%
ME4A	≥ 0.75 cd/m ²	≥ 0.40	≥ 0.60	≥ 0.60	≤ 15%
ME4B	≥ 0.75 cd/m ²	≥ 0.40	≥ 0.50	≥ 0.50	≤ 15%
ME5	≥ 0.50 cd/m ²	≥ 0.35	≥ 0.40	≥ 0.50	≤ 15%
ME6	≥ 0.3 cd/m ²	≥ 0.35	≥ 0.40	≥ 0.50	≤ 15%
MEW1D	≥ 2.0 cd/m ²	≥ 0.40	≥ 0.60	≥ 0.50	≤ 10%
MEW1W	-	≥ 0.15	-	≥ 0.50	-
MEW2D	≥ 1.5 cd/m ²	≥ 0.40	≥ 0.60	≥ 0.50	≤ 10%
MEW2W	-	≥ 0.15	-	≥ 0.50	-
MEW3D	≥ 1.0 cd/m ²	≥ 0.40	≥ 0.60	≥ 0.50	≤ 15%
MEW3W	-	≥ 0.15	-	≥ 0.50	-
MEW4D	≥ 0.75 cd/m ²	≥ 0.40	-	≥ 0.50	≤ 15%
MEW4W	-	≥ 0.15	-	≥ 0.50	-
MEW5D	≥ 0.5 cd/m ²	≥ 0.35	-	≥ 0.50	≤ 15%
MEW5W	-	≥ 0.15	-	≥ 0.50	-

- CE** This class is intended for users of motorised vehicles in conflict areas such as road intersections, roundabouts, etc. These areas also allow provision for cyclists and pedestrians.

The CE classes go from CE0 to CE5, with CE0 defining the strictest requirements.

	Horizontal illuminance		
	E_m	E_{min}	U_o
CE0	≥ 50.0 lux	-	≥ 0.40
CE1	≥ 30.0 lux	-	≥ 0.40
CE2	≥ 20.0 lux	-	≥ 0.40
CE3	≥ 15.0 lux	-	≥ 0.40
CE5	≥ 7.50 lux	-	≥ 0.40

- S** This class is intended for cyclists and pedestrians on footpaths, cycle paths, residential roads, pedestrian streets, parking areas, etc. The S class and the A class are for similar situations, but the S class criteria are defined in terms of horizontal illuminance as preferred by certain countries.

The S classes go from S1 to S6, with S1 defining the strictest requirements.

	Horizontal illuminance		
	E_m	E_{min}	U_o
S1	≥ 15.0 lux; ≤ 22.5 lux	≥ 5.0 lux	-
S2	≥ 10.0 lux; ≤ 15.0 lux	≥ 3.0 lux	-
S3	≥ 7.5 lux; ≤ 11.25 lux	≥ 1.5 lux	-
S4	≥ 5.0 lux; ≤ 7.5 lux	≥ 1.0 lux	-
S5	≥ 3.0 lux; ≤ 4.5 lux	≥ 0.6 lux	-
S6	≥ 2.0 lux; ≤ 3.0 lux	≥ 0.6 lux	-

- A** This class is intended for cyclists and pedestrians on footpaths, cycle paths, residential roads, pedestrian streets, parking areas, etc. The A class and the S class are for similar situations but the A class criteria are defined in terms of hemispherical illuminance as preferred by certain countries.

The A classes go from A1 to A5, with A1 defining the strictest requirements.

	Hemispherical illuminance	
	E_m	U_o
A1	≥ 5.0 lux	≥ 0.15
A2	≥ 3.0 lux	≥ 0.15
A3	≥ 2.0 lux	≥ 0.15
A4	≥ 1.5 lux	≥ 0.15
A5	≥ 1.0 lux	≥ 0.15

- ES** This class is an extension of the A and S classes for those situations where the identification of people or objects is particularly necessary, for example in high crime risk areas. The criteria are in terms of semi-cylindrical illuminance and are used in addition to the S or A class criteria.

The ES classes go from ES1 to ES9, with ES1 defining the strictest requirements.

	Semi-cylindrical illuminance
	E_{min}
ES1	≥ 10.0 lux
ES2	≥ 7.5 lux
ES3	≥ 5.0 lux
ES4	≥ 3.0 lux
ES5	≥ 2.0 lux
ES6	≥ 1.5 lux
ES7	≥ 1.0 lux
ES8	≥ 0.75 lux
ES9	≥ 0.50 lux

- EV** This class is an extension of the CE, A and S classes for those situations requiring good visibility of vertical surfaces, for example toll booths. The criteria are in terms of vertical illuminance and are used in addition to the CE, S or A class criteria.

The EV classes go from EV1 to EV6, with EV1 defining the strictest requirements.

	Vertical illuminance
	E_{min}
EV1	≥ 50.0 lux
EV2	≥ 30.0 lux
EV3	≥ 10.0 lux
EV4	≥ 7.5 lux
EV5	≥ 5.0 lux
EV6	≥ 0.5 lux

Recommended lighting levels

When lighting adjacent areas there should not be a difference greater than two comparable classes between the areas, with the area with the highest recommended lighting level being taken as the reference area.

To help apply this when adjacent area are lit to different lighting classes the table below shows lighting classes for comparable lighting levels.

CE0	ME1 MEW1 CE1	ME2 MEW2 CE2	ME3 MEW3 CE3 S1	ME4 MEW4 CE4 S2	ME5 MEW5 CE5 S3	ME6 S4	S5	S6
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Lighting classes of comparable lighting level

In some countries there is a preference for a particular measure of illuminance over others (for example hemispherical illuminance in preference to horizontal illuminance). The following two tables show comparable alternative lighting classes to aid in designing to local preferences.

A class (hemispherical illuminance) compared to S class (horizontal illuminance)

Reference class	S1	S2	S3	S4	S5	S6
Alternative class		A1	A2	A3	A4	A5

ES class (semi-cylindrical illuminance) and EV class (vertical illuminance) compared to CE and S class (horizontal illuminance)

Reference class	CE0	CE1	CE2	CE3 S1	CE4 S2	CE5 S3	S4	S5	S6
Alternative class	ES1	ES2 EV3	ES3 EV4	ES4 EV5	ES5	ES6	ES7	ES8	ES9