

5.3 Lighting requirements for interior areas, tasks and activities

Table 5.1 — Traffic zones inside buildings

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.1.1	Circulation areas and corridors	100	28	0,40	40	<ul style="list-style-type: none"> • Illuminance at floor level. • R_a and UGR similar to adjacent areas. • 150 lx if there are vehicles on the route. • The lighting of exits and entrances shall provide a transition zone to avoid sudden changes in illuminance between inside and outside by day or night. • Care should be taken to avoid glare to drivers and pedestrians.
5.1.2	Stairs, escalators, travelators	100	25	0,40	40	Requires enhanced contrast on the steps.
5.1.3	Elevators, lifts	100	25	0,40	40	Light level in front of the lift should be at least $\bar{E}_m = 200$ lx.
5.1.4	Loading ramps/bays	150	25	0,40	40	

Table 5.2 — General areas inside buildings – Rest, sanitation and first aid rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.2.1	Canteens, pantries	200	22	0,40	80	
5.2.2	Rest rooms	100	22	0,40	80	
5.2.3	Rooms for physical exercise	300	22	0,40	80	
5.2.4	Cloakrooms, washrooms, bathrooms, toilets	200	25	0,40	80	In each individual toilet if these are fully enclosed.
5.2.5	Sick bay	500	19	0,60	80	
5.2.6	Rooms for medical attention	500	16	0,60	90	$4\ 000\ K \leq T_{CP} \leq 5\ 000\ K$

Table 5.3 — General areas inside buildings – Control rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.3.1	Plant rooms, switch gear rooms	200	25	0,40	60	
5.3.2	Telex, post room, switchboard	500	19	0,60	80	

Table 5.4 — General areas inside buildings – Store rooms, cold stores

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.4.1	Store and stockrooms	100	25	0,40	60	200 lx if continuously occupied.
5.4.2	Dispatch packing handling areas	300	25	0,60	60	

Table 5.5 — General areas inside buildings – Storage rack areas

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.5.1	Gangways: unmanned	20	-	0,40	40	Illuminance at floor level.
5.5.2	Gangways: manned	150	22	0,40	60	Illuminance at floor level.
5.5.3	Control stations	150	22	0,60	80	
5.5.4	Storage rack face	200	-	0,40	60	Vertical illuminance, portable lighting may be used.

Table 5.6 — Industrial activities and crafts – Agriculture

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.6.1	Loading and operating of goods, handling equipment and machinery	200	25	0,40	80	
5.6.2	Buildings for livestock	50	-	0,40	40	
5.6.3	Sick animal pens; calving stalls	200	25	0,60	80	
5.6.4	Feed preparation; dairy; utensil washing	200	25	0,60	60	

Table 5.7 — Industrial activities and crafts – Bakeries

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.7.1	Preparation and baking	300	22	0,60	80	
5.7.2	Finishing, glazing, decorating	500	22	0,70	80	

Table 5.8 — Industrial activities and crafts – Cement, cement goods, concrete, bricks

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.8.1	Drying	50	28	0,40	20	Safety colours shall be recognisable.
5.8.2	Preparation of materials, work on kilns and mixers	200	28	0,40	40	
5.8.3	General machine work	300	25	0,60	80	
5.8.4	Rough forms	300	25	0,60	80	

Table 5.9 — Industrial activities and crafts – Ceramics, tiles, glass, glassware

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.9.1	Drying	50	28	0,40	20	Safety colours shall be recognisable.
5.9.2	Preparation, general machine work	300	25	0,60	80	
5.9.3	Enamelling, rolling, pressing, shaping simple parts, glazing, glass blowing	300	25	0,60	80	
5.9.4	Grinding, engraving, glass polishing, shaping precision parts, manufacture of glass instruments	750	19	0,70	80	
5.9.5	Grinding of optical glass, crystal, hand grinding and engraving	750	16	0,70	80	
5.9.6	Precision work e.g. decorative grinding, hand painting	1 000	16	0,70	90	$4\,000\text{ K} \leq T_{CP} \leq 6\,500\text{ K}$
5.9.7	Manufacture of synthetic precious stones	1 500	16	0,70	90	$4\,000\text{ K} \leq T_{CP} \leq 6\,500\text{ K}$

Table 5.10 — Industrial activities and crafts – Chemical, plastics and rubber industry

Ref. no.	Type of area, task or activity	\bar{E}_m lx	GR_L –	U_o –	R_a –	Specific requirements
5.10.1	Remote-operated processing installations	50	-	0,40	20	Safety colours shall be recognisable.
5.10.2	Processing installations with limited manual intervention	150	28	0,40	40	
5.10.3	Constantly manned work stations in processing installations	300	25	0,60	80	
5.10.4	Precision measuring rooms, laboratories	500	19	0,60	80	
5.10.5	Pharmaceutical production	500	22	0,60	80	
5.10.6	Tyre production	500	22	0,60	80	
5.10.7	Colour inspection	1 000	16	0,70	90	4 000 K $\leq T_{op} \leq$ 6 500 K
5.10.8	Cutting, finishing, inspection	750	19	0,70	80	

Table 5.11 — Industrial activities and crafts – Electrical and electronic industry

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.11.1	Cable and wire manufacture	300	25	0,60	80	
5.11.2	Winding: - large coils - medium-sized coils - small coils	300 500 750	25 22 19	0,60 0,60 0,70	80 80 80	
5.11.3	Coil impregnating	300	25	0,60	80	
5.11.4	Galvanising	300	25	0,60	80	
5.11.5	Assembly work: - rough, e.g. large transformers - medium, e.g. switchboards - fine, e.g. telephones, radios, IT equipment (computers) - precision, e.g. measuring equipment, printed circuit boards	300 500 750 1 000	25 22 19 16	0,60 0,60 0,70 0,70	80 80 80 80	
5.11.6	Electronic workshops, testing, adjusting	1500	16	0,70	80	

Table 5.12 — Industrial activities and crafts – Food stuffs and luxury food industry

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.12.1	Work stations and zones in: - breweries, malting floor, - for washing, barrel filling, cleaning, sieving, peeling, - cooking in preserve and chocolate factories, - work stations and zones in sugar factories, - for drying and fermenting raw tobacco, fermentation cellar	200	25	0,40	80	
5.12.2	Sorting and washing of products, milling, mixing, packing	300	25	0,60	80	
5.12.3	Work stations and critical zones in slaughter houses, butchers, dairies mills, on filtering floor in sugar refineries	500	25	0,60	80	
5.12.4	Cutting and sorting of fruit and vegetables	300	25	0,60	80	
5.12.5	Manufacture of delicatessen foods, kitchen work, manufacture of cigars and cigarettes	500	22	0,60	80	
5.12.6	Inspection of glasses and bottles, product control, trimming, sorting, decoration	500	22	0,60	80	
5.12.7	Laboratories	500	19	0,60	80	
5.12.8	Colour inspection	1 000	16	0,70	90	$4\,000\text{ K} \leq T_{cp} \leq 6\,500\text{ K}$

Table 5.13 — Industrial activities and crafts – Foundries and metal casting

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.13.1	Man-size underfloor tunnels, cellars, etc.	50	-	0,40	20	Safety colours shall be recognisable.
5.13.2	Platforms	100	25	0,40	40	
5.13.3	Sand preparation	200	25	0,40	80	
5.13.4	Dressing room	200	25	0,40	80	
5.13.5	Work stations at cupola and mixer	200	25	0,40	80	
5.13.6	Casting bay	200	25	0,40	80	
5.13.7	Shake out areas	200	25	0,40	80	
5.13.8	Machine moulding	200	25	0,40	80	
5.13.9	Hand and core moulding	300	25	0,60	80	
5.13.10	Die casting	300	25	0,60	80	
5.13.11	Model building	500	22	0,60	80	

Table 5.14 — Industrial activities and crafts – Hairdressers

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.14.1	Hairdressing	500	19	0,60	90	

Table 5.15 — Industrial activities and crafts – Jewellery manufacturing

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.15.1	Working with precious stones	1 500	16	0,70	90	4 000 K $\leq T_{CP} \leq$ 6 500 K
5.15.2	Manufacture of jewellery	1 000	16	0,70	90	
5.15.3	Watch making (manual)	1 500	16	0,70	80	
5.15.4	Watch making (automatic)	500	19	0,60	80	

Table 5.16 — Industrial activities and crafts – Laundries and dry cleaning

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.16.1	Goods in, marking and sorting	300	25	0,60	80	
5.16.2	Washing and dry cleaning	300	25	0,60	80	
5.16.3	Ironing, pressing	300	25	0,60	80	
5.16.4	Inspection and repairs	750	19	0,70	80	

Table 5.17 — Industrial activities and crafts – Leather and leather goods

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.17.1	Work on vats, barrels, pits	200	25	0,40	40	
5.17.2	Fleshing, skiving, rubbing, tumbling of skins	300	25	0,40	80	
5.17.3	Saddlery work, shoe manufacture: stitching, sewing, polishing, shaping, cutting, punching	500	22	0,60	80	
5.17.4	Sorting	500	22	0,60	90	$4\,000\text{ K} \leq T_{cp} \leq 6\,500\text{ K}$
5.17.5	Leather dyeing (machine)	500	22	0,60	80	
5.17.6	Quality control	1 000	19	0,70	80	
5.17.7	Colour inspection	1 000	16	0,70	90	$4\,000\text{ K} \leq T_{cp} \leq 6\,500\text{ K}$
5.17.8	Shoe making	500	22	0,60	80	
5.17.9	Glove making	500	22	0,60	80	

Table 5.18 — Industrial activities and crafts – Metal working and processing

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.18.1	Open die forging	200	25	0,60	80	
5.18.2	Drop forging	300	25	0,60	80	
5.18.3	Welding	300	25	0,60	80	
5.18.4	Rough and average machining; tolerances $\geq 0,1$ mm	300	22	0,60	80	
5.18.5	Precision machining; grinding; tolerances $< 0,1$ mm	500	19	0,70	80	
5.18.6	Scribing; inspection	750	19	0,70	80	
5.18.7	Wire and pipe drawing shops; cold forming	300	25	0,60	80	
5.18.8	Plate machining; thickness ≥ 5 mm	200	25	0,60	80	
5.18.9	Sheet metalwork; thickness < 5 mm	300	22	0,60	80	
5.18.10	Tool making; cutting equipment manufacture	750	19	0,70	80	
5.18.11	Assembly: - rough - medium - fine - precision	200 300 500 750	25 25 22 19	0,60 0,60 0,60 0,70	80 80 80 80	
5.18.12	Galvanising	300	25	0,60	80	
5.18.13	Surface preparation and painting	750	25	0,70	80	
5.18.14	Tool, template and jig making, precision mechanics, micro-mechanics	1 000	19	0,70	80	

Table 5.19 — Industrial activities and crafts – Paper and paper goods

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.19.1	Edge runners, pulp mills	200	25	0,40	80	
5.19.2	Paper manufacture and processing, paper and corrugating machines, cardboard manufacture	300	25	0,60	80	
5.19.3	Standard bookbinding work, e.g. folding, sorting, gluing, cutting, embossing, sewing	500	22	0,60	80	

Table 5.20 — Industrial activities and crafts – Power stations

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.20.1	Fuel supply plant	50	-	0,40	20	Safety colours shall be recognisable.
5.20.2	Boiler house	100	28	0,40	40	
5.20.3	Machine halls	200	25	0,40	80	
5.20.4	Side rooms, e.g. pump rooms, condenser rooms, etc.; switchboards (inside buildings)	200	25	0,40	60	
5.20.5	Control rooms	500	16	0,70	80	1. Control panels are often vertical. 2. Dimming may be required. 3. DSE-work, see 4.9.

Table 5.21 — Industrial activities and crafts – Printers

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.21.1	Cutting, gilding, embossing, block engraving, work on stones and platens, printing machines, matrix making	500	19	0,60	80	
5.21.2	Paper sorting and hand printing	500	19	0,60	80	
5.21.3	Type setting, retouching, lithography	1 000	19	0,70	80	
5.21.4	Colour inspection in multicoloured printing	1 500	16	0,70	90	$5\,000\text{ K} \leq T_{cp} \leq 6\,500\text{ K}$
5.21.5	Steel and copper engraving	2 000	16	0,70	80	For directionality, see 4.6.4.

Table 5.22 — Industrial activities and crafts – Rolling mills, iron and steel works

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.22.1	Production plants without manual operation	50	-	0,40	20	Safety colours shall be recognisable.
5.22.2	Production plants with occasional manual operation	150	28	0,40	40	
5.22.3	Production plants with continuous manual operation	200	25	0,60	80	
5.22.4	Slab Store	50	-	0,40	20	Safety colours shall be recognisable.
5.22.5	Furnaces	200	25	0,40	20	Safety colours shall be recognisable.
5.22.6	Mill train; coiler; shear line	300	25	0,60	40	
5.22.7	Control platforms; control panels	300	22	0,60	80	
5.22.8	Test, measurement and inspection	500	22	0,60	80	
5.22.9	Underfloor man-sized tunnels; belt sections, cellars, etc.	50	-	0,40	20	Safety colours shall be recognisable.

Table 5.23 — Industrial activities and crafts – Textile manufacture and processing

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.23.1	Work stations and zones in baths, bale opening	200	25	0,60	60	
5.23.2	Carding, washing, ironing, devilling machine work, drawing, combing, sizing, card cutting, pre-spinning, jute and hemp spinning	300	22	0,60	80	
5.23.3	Spinning, plying, reeling, winding	500	22	0,60	80	Prevent stroboscopic effects.
5.23.4	Warping, weaving, braiding, knitting	500	22	0,60	80	Prevent stroboscopic effects.
5.23.5	Sewing, fine knitting, taking up stitches	750	22	0,70	80	
5.23.6	Manual design, drawing patterns	750	22	0,70	90	$4\,000\text{ K} \leq T_{CP} \leq 6\,500\text{ K}$
5.23.7	Finishing, dyeing	500	22	0,60	80	
5.23.8	Drying room	100	28	0,40	60	
5.23.9	Automatic fabric printing	500	25	0,60	80	
5.23.10	Burling, picking, trimming	1 000	19	0,70	80	
5.23.11	Colour inspection; fabric control	1 000	16	0,70	90	$4\,000\text{ K} \leq T_{CP} \leq 6\,500\text{ K}$
5.23.12	Invisible mending	1 500	19	0,70	90	$4\,000\text{ K} \leq T_{CP} \leq 6\,500\text{ K}$
5.23.13	Hat manufacturing	500	22	0,60	80	

Table 5.24 — Industrial activities and crafts – Vehicle construction and repair

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.24.1	Body work and assembly	500	22	0,60	80	
5.24.2	Painting, spraying chamber, polishing chamber	750	22	0,70	80	
5.24.3	Painting: touch-up, inspection	1 000	19	0,70	90	4 000 K $\leq T_{CP} \leq$ 6 500 K
5.24.4	Upholstery manufacture (manned)	1 000	19	0,70	80	
5.24.5	Final inspection	1 000	19	0,70	80	
5.24.6	General vehicle services, repair and testing	300	22	0,60	80	Consider local lighting.

Table 5.25 — Industrial activities and crafts – Wood working and processing

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.25.1	Automatic processing e.g. drying, plywood manufacturing	50	28	0,40	40	
5.25.2	Steam pits	150	28	0,40	40	
5.25.3	Saw frame	300	25	0,60	60	Prevent stroboscopic effects.
5.25.4	Work at joiner's bench, gluing, assembly	300	25	0,60	80	
5.25.5	Polishing, painting, fancy joinery	750	22	0,70	80	
5.25.6	Work on wood working machines, e.g. turning, fluting, dressing, rebating, grooving, cutting, sawing, sinking	500	19	0,60	80	Prevent stroboscopic effects.
5.25.7	Selection of veneer woods	750	22	0,70	90	4 000 K $\leq T_{CP} \leq$ 6 500 K
5.25.8	Marquetry, inlay work	750	22	0,70	90	4 000 K $\leq T_{CP} \leq$ 6 500 K
5.25.9	Quality control, inspection	1 000	19	0,70	90	4 000 K $\leq T_{CP} \leq$ 6 500 K

Table 5.26 — Offices

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.26.1	Filing, copying, etc.	300	19	0,40	80	
5.26.2	Writing, typing, reading, data processing	500	19	0,60	80	DSE-work, see 4.9.
5.26.3	Technical drawing	750	16	0,70	80	
5.26.4	CAD work stations	500	19	0,60	80	DSE-work, see 4.9.
5.26.5	Conference and meeting rooms	500	19	0,60	80	Lighting should be controllable.
5.26.6	Reception desk	300	22	0,60	80	
5.26.7	Archives	200	25	0,40	80	

Table 5.27 — Retail premises

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.27.1	Sales area	300	22	0,40	80	
5.27.2	Till area	500	19	0,60	80	
5.27.3	Wrapper table	500	19	0,60	80	

Table 5.28 — Places of public assembly – General areas

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L —	U_o —	R_a —	Specific requirements
5.28.1	Entrance halls	100	22	0,40	80	UGR only if applicable.
5.28.2	Cloakrooms	200	25	0,40	80	
5.28.3	Lounges	200	22	0,40	80	
5.28.4	Ticket offices	300	22	0,60	80	

Table 5.29 — Places of public assembly – Restaurants and hotels

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.29.1	Reception/cashier desk, porters desk	300	22	0,60	80	
5.29.2	Kitchen	500	22	0,60	80	There should be a transition zone between kitchen and restaurant.
5.29.3	Restaurant, dining room, function room	–	–	–	80	The lighting should be designed to create the appropriate atmosphere.
5.29.4	Self-service restaurant	200	22	0,40	80	
5.29.5	Buffet	300	22	0,60	80	
5.29.6	Conference rooms	500	19	0,60	80	Lighting should be controllable.
5.29.7	Corridors	100	25	0,40	80	During night-time lower levels are acceptable.

Table 5.30 — Places of public assembly – Theatres, concert halls, cinemas, places for entertainment

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.30.1	Practice rooms	300	22	0,60	80	
5.30.2	Dressing rooms	300	22	0,60	90	Lighting at mirrors for make-up shall be "glare-free". Disability glare should be avoided at mirrors for make-up.
5.30.3	Seating areas – maintenance, cleaning	200	22	0,50	80	Illuminance at floor level.
5.30.4	Stage area - rigging	300	25	0,40	80	Illuminance at floor level.

Table 5.31 — Places of public assembly – Trade fairs, exhibition halls

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.31.1	General lighting	300	22	0,40	80	

Table 5.32 — Places of public assembly – Museums

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.32.1	Exhibits, insensitive to light					Lighting is determined by the display requirements.
5.32.2	Exhibits sensitive to light					1. Lighting is determined by the display requirements. 2. Protection against damaging radiation is paramount.

Table 5.33 — Places of public assembly – Libraries

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.33.1	Bookshelves	200	19	0,40	80	
5.33.2	Reading area	500	19	0,60	80	
5.33.3	Counters	500	19	0,60	80	

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Table 5.34 — Places of public assembly – Public car parks (indoor)

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.34.1	In/out ramps (during the day)	300	25	0,40	40	1. Illuminances at floor level. 2. Safety colours shall be recognisable.
5.34.2	In/out ramps (at night)	75	25	0,40	40	1. Illuminances at floor level. 2. Safety colours shall be recognisable.
5.34.3	Traffic lanes	75	25	0,40	40	1. Illuminances at floor level. 2. Safety colours shall be recognisable.
5.34.4	Parking areas	75	–	0,40	40	1. Illuminances at floor level. 2. Safety colours shall be recognisable. 3. A high vertical illuminance increases recognition of peoples faces and therefore the feeling of safety.
5.34.5	Ticket office	300	19	0,60	80	1. Reflections in the windows shall be avoided. 2. Glare from outside shall be prevented.

Table 5.35 — Educational premises – Nursery school, play school

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.35.1	Play room	300	22	0,40	80	High luminances should be avoided in viewing directions from below by use of diffuse covers.
5.35.2	Nursery	300	22	0,40	80	High luminances should be avoided in viewing directions from below by use of diffuse covers.
5.35.3	Handicraft room	300	19	0,60	80	

Table 5.36 — Educational premises – Educational buildings

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.36.1	Classrooms, tutorial rooms	300	19	0,60	80	Lighting should be controllable.
5.36.2	Classroom for evening classes and adults education	500	19	0,60	80	Lighting should be controllable.
5.36.3	Auditorium, lecture halls	500	19	0,60	80	Lighting should be controllable to accommodate various A/V needs.
5.36.4	Black, green and white boards	500	19	0,70	80	Specular reflections shall be prevented. Presenter/teacher shall be illuminated with suitable vertical illuminance.
5.36.5	Demonstration table	500	19	0,70	80	In lecture halls 750 lx.
5.36.6	Art rooms	500	19	0,60	80	
5.36.7	Art rooms in art schools	750	19	0,70	90	5 000 K < T_{CP} 6 500 K.
5.36.8	Technical drawing rooms	750	16	0,70	80	
5.36.9	Practical rooms and laboratories	500	19	0,60	80	
5.36.10	Handicraft rooms	500	19	0,60	80	
5.36.11	Teaching workshop	500	19	0,60	80	
5.36.12	Music practice rooms	300	19	0,60	80	
5.36.13	Computer practice rooms (menu driven)	300	19	0,60	80	DSE-work, see 4.9.
5.36.14	Language laboratory	300	19	0,60	80	
5.36.15	Preparation rooms and workshops	500	22	0,60	80	
5.36.16	Entrance halls	200	22	0,40	80	
5.36.17	Circulation areas, corridors	100	25	0,40	80	

Table 5.36 — Educational premises – Educational buildings (continued)

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.36.18	Stairs	150	25	0,40	80	
5.36.19	Student common rooms and assembly halls	200	22	0,40	80	
5.36.20	Teachers rooms	300	19	0,60	80	
5.36.21	Library: bookshelves	200	19	0,60	80	
5.36.22	Library: reading areas	500	19	0,60	80	
5.36.23	Stock rooms for teaching materials	100	25	0,40	80	
5.36.24	Sports halls, gymnasiums, swimming pools	300	22	0,60	80	See EN 12193 for training conditions.
5.36.25	School canteens	200	22	0,40	80	
5.36.26	Kitchen	500	22	0,60	80	

Table 5.37 — Health care premises – Rooms for general use

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
						Too high luminances in the patients' visual field shall be prevented.
5.37.1	Waiting rooms	200	22	0,40	80	
5.37.2	Corridors: during the day	100	22	0,40	80	Illuminance at floor level.
5.37.3	Corridors: cleaning	100	22	0,40	80	Illuminance at floor level.
5.37.4	Corridors: during the night	50	22	0,40	80	Illuminance at floor level.
5.37.5	Corridors with multi-purpose use	200	22	0,60	80	Illuminance at task/activity level.
5.37.6	Day rooms	200	22	0,60	80	
5.37.7	Elevators, lifts for persons and visitors	100	22	0,60	80	Illuminance at floor level.
5.37.8	Service lifts	200	22	0,60	80	Illuminance at floor level.

Table 5.38 — Health care premises – Staff rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.38.1	Staff office	500	19	0,60	80	
5.38.2	Staff rooms	300	19	0,60	80	

Table 5.39 — Health care premises – Wards, maternity wards

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
						Too high luminances in the patients' visual field shall be prevented.
5.39.1	General lighting	100	19	0,40	80	Illuminance at floor level.
5.39.2	Reading lighting	300	19	0,70	80	
5.39.3	Simple examinations	300	19	0,60	80	
5.39.4	Examination and treatment	1 000	19	0,70	90	
5.39.5	Night lighting, observation lighting	5		-	80	
5.39.6	Bathrooms and toilets for patients	200	22	0,40	80	

Table 5.40 — Health care premises – Examination rooms (general)

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.40.1	General lighting	500	19	0,60	90	$4\ 000\ K \leq T_{CP} \leq 5\ 000\ K$
5.40.2	Examination and treatment	1 000	19	0,70	90	

Table 5.41 — Health care premises – Eye Examination rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.41.1	General lighting	500	19	0,60	90	$4\ 000\ K \leq T_{CP} \leq 5\ 000\ K$
5.41.2	Examination of the outer eye	1 000	-	-	90	
5.41.3	Reading and colour vision tests with vision charts	500	16	0,70	90	

Table 5.42 — Health care premises – Ear Examination rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.42.1	General lighting	500	19	0,60	90	
5.42.2	Ear examination	1 000	-	-	90	

Table 5.43 — Health care premises – Scanner rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.43.1	General lighting	300	19	0,60	80	
5.43.2	Scanners with image enhancers and television systems	50	19	-	80	DSE-work, see 4.9.

Table 5.44 — Health care premises – Delivery rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.44.1	General lighting	300	19	0,60	80	
5.44.2	Examination and treatment	1 000	19	0,70	80	

Table 5.45 — Health care premises – Treatment rooms (general)

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.45.1	Dialysis	500	19	0,60	80	Lighting should be controllable.
5.45.2	Dermatology	500	19	0,60	90	
5.45.3	Endoscopy rooms	300	19	0,60	80	
5.45.4	Plaster rooms	500	19	0,60	80	
5.45.5	Medical baths	300	19	0,60	80	
5.45.6	Massage and radiotherapy	300	19	0,60	80	

Table 5.46 — Health care premises – Operating areas

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.46.1	Pre-op and recovery rooms	500	19	0,60	90	
5.46.2	Operating theatre	1 000	19	0,60	90	
5.46.3	Operating cavity			-		\bar{E}_m : 10 000 lx to 100 000 lx

Table 5.47 — Health care premises – Intensive care unit

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.47.1	General lighting	100	19	0,60	90	Illuminance at floor level.
5.47.2	Simple examinations	300	19	0,60	90	Illuminance at bed level.
5.47.3	Examination and treatment	1 000	19	0,70	90	Illuminance at bed level.
5.47.4	Night watch	20	19	-	90	

Table 5.48 — Health care premises – Dentists

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.48.1	General lighting	500	19	0,60	90	Lighting should be glare-free for the patient.
5.48.2	At the patient	1 000	-	0,70	90	
5.48.3	Operating cavity	-	-	-	-	Specific requirements are given in EN ISO 9680.
5.48.4	White teeth matching	-	-	-	-	Specific requirements are given in EN ISO 9680.

Table 5.49 — Health care premises – Laboratories and pharmacies

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.49.1	General lighting	500	19	0,60	80	
5.49.2	Colour inspection	1 000	19	0,70	90	$6\,000\text{ K} \leq T_{CP} \leq 6\,500\text{ K}$

Table 5.50 — Health care premises – Decontamination rooms

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L	U_o	R_a	Specific requirements
5.50.1	Sterilisation rooms	300	22	0,60	80	
5.50.2	Disinfection rooms	300	22	0,60	80	

Table 5.51 — Health care premises – Autopsy rooms and mortuaries

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L	U_o	R_a	Specific requirements
5.51.1	General lighting	500	19	0,60	90	
5.51.2	Autopsy table and dissecting table	5 000	-	-	90	Values higher than 5 000 lx may be required.

Table 5.52 — Transportation areas – Airports

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L	U_o	R_a	Specific requirements
5.52.1	Arrival and departure halls, baggage claim areas	200	22	0,40	80	
5.52.2	Connecting areas	150	22	0,40	80	
5.52.3	Information desks, check-in desks	500	19	0,70	80	DSE-work, see 4.9.
5.52.4	Customs and passport control desks	500	19	0,70	80	Facial recognition has to be provided.

Table 5.52 — Transportation areas – Airports (continued)

Ref. no.	Type of area, task or activity	\bar{E}_m lx	UGR_L –	U_o –	R_a –	Specific requirements
5.52.5	Waiting areas	200	22	0,40	80	
5.52.6	Luggage store rooms	200	25	0,40	80	
5.52.7	Security check areas	300	19	0,60	80	DSE-work, see 4.9.
5.52.8	Air traffic control tower	500	16	0,60	80	<ol style="list-style-type: none"> 1. Lighting should be dimmable. 2. DSE-work, see 4.9. 3. Glare from daylight shall be avoided. 4. Reflections in windows, especially at night shall be avoided.
5.52.9	Testing and repair hangars	500	22	0,60	80	
5.52.10	Engine test areas	500	22	0,60	80	
5.52.11	Measuring areas in hangars	500	22	0,60	80	

Table 5.53 — Transportation areas – Railway installations

Ref. no.	Type of area, task or activity	\bar{E}_m lx	$UGRL$ –	U_o –	R_a –	Specific requirements
5.53.1	Fully enclosed platforms, small number of passengers	100	-	0,40	40	1. Special attention to the edge of the platform. 2. Avoid glare for vehicle drivers. 3. Illuminance at floor level.
5.53.2	Fully enclosed platforms, large number of passengers	200	-	0,50	60	1. Special attention to the edge of the platform. 2. Avoid glare for vehicle drivers. 3. Illuminance at floor level.
5.53.3	Passenger subways (underpasses), small number of passengers	50	28	0,50	40	Illuminance at floor level
5.53.4	Passenger subways (underpasses), large number of passengers	100	28	0,50	40	Illuminance at floor level.
5.53.5	Ticket hall and concourse	200	28	0,50	40	
5.53.6	Ticket and luggage offices and counters	300	19	0,50	80	
5.53.7	Waiting rooms	200	22	0,40	80	
5.53.8	Entrance halls, station halls	200	-	0,40	80	
5.53.9	Switch and plant rooms	200	28	0,40	60	Safety colours must be recognisable.
5.53.10	Access tunnels	50	-	0,40	20	Illuminance at floor level.
5.53.11	Maintenance and servicing sheds	300	22	0,50	60	

6 Verification procedures

6.1 General

Specified design criteria which are listed in this European Standard shall be verified by the following procedures.