

PRACTICAL LIGHTING KNOWLEDGE

Roadway Lighting

EN 13201 — the M, C and P classes, and why roads are designed in luminance, not lux.

Why design a road in luminance?

Because the driver sees the brightness of the road surface, not the light hitting it. EN 13201 grades motorways in cd/m^2 for exactly that reason.

DEFINITION · 1 OF 2

M Classes

Motorized traffic, **luminance (cd/m²)**.



M1 (brightest) to M6. Set by speed, traffic and complexity —
what the driver actually perceives.

DEFINITION · 2 OF 2

P Classes

Pedestrian areas, **illuminance (lux)**.



P1 to P6 for footways and low-speed zones, **specified in lux on the ground.**

WHAT MATTERS

$$\bar{L} + U_0 + TI \text{ (glare)}$$

A road class is average luminance, overall uniformity and threshold increment (glare) together — not a single number.

Same road. Three numbers.

An M class is defined by three criteria, not one.

L

Avg luminance

cd/m^2

U_0

Uniformity

≥ 0.4

TI

Glare

$\leq 10\%$

M-class luminance **to know.**

Average road-surface luminance by M class, EN 13201-2 (illustrative).

M1

2.0 cd/m²

M2

1.5 cd/m²

M3

1.0 cd/m²

M4

0.75 cd/m²

M5

0.5 cd/m²



Designing a motorway in lux.

Lux ignores the road surface and the driver's viewpoint. A road that hits a lux target can still look patchy and dark — **luminance and uniformity** are what the eye judges.

NEXT TIME YOU LIGHT A ROAD

Confirm the lighting class.

EN 13201-1 selects the class from speed, traffic and conflict. The class fixes luminance, uniformity and glare.

- ✓ M / C / P class selection
- ✓ Average luminance & uniformity (U_0)
- ✓ Threshold increment (TI) for glare

PRACTICAL LIGHTING KNOWLEDGE

Save this. Send it to a colleague.



NEXT EPISODE

Tunnel Lighting Zones

→ nlc.com.sa/academy