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Lighting applications - Tunnel lighting

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CONTENTS

0 Introduction

The aim of tunnel lighting is to ensure that users, both during the day and by night, can approach, pass through, and exit the tunnel without changing direction or speed with the degree of safety commensurate to that on the approach road.

To achieve safe passage through a road tunnel, it is necessary that all users have sufficient information regarding the course of the road ahead, possible obstacles and the presence and actions of other users. Furthermore it is necessary that users,particularly drivers of motor vehicles, have at least an equal sense of security to that experienced on the approach roads.

Principal characteristics required to describe the quality of tunnel lighting are:

– the luminance and illuminance levels of the road surface;

– the luminance level of the walls up to 2 m in height above the road surface;

– the uniformity of the luminance distribution on the road and walls;

– the control of induced glare;

– the avoidance of critical flicker frequencies.

1 Scope

This CEN Technical Report gives guidance on the design of the lighting of road tunnels and underpasses for motorized and mixed traffic. This guidance concerns arrangements, levels and other parameters including daylight, which are related only to traffic safety. Aspects concerning visual comfort should be chosen in agreement with national practice. The guidance in this report may be applied to any tunnel or underpass where the decision to provide lighting has been taken by any authority working within national legislation or other constraints. The report is based on photometric considerations, and all values of luminance and illuminance are maintained values.
The main body of the report covers the common aspects of Tunnel Lighting, and the various methods currently in use in Europe are detailed in the annexes. No single method is recommended.

2 References

This Technical reports incorporates by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed in appendix. For dated references, subsequent amendments to or revisions of any of these publications apply to this Technical Report only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Not applicable

3 Definitions

For the purposes of this document, the definitions of prEN12665 and prEN13201 and the following apply. The definitions of zones in a tunnel are based on lighting considerations and not on aspects of installation technique or on civil engineering. The lighting terms are in agreement with the CIE Publications.