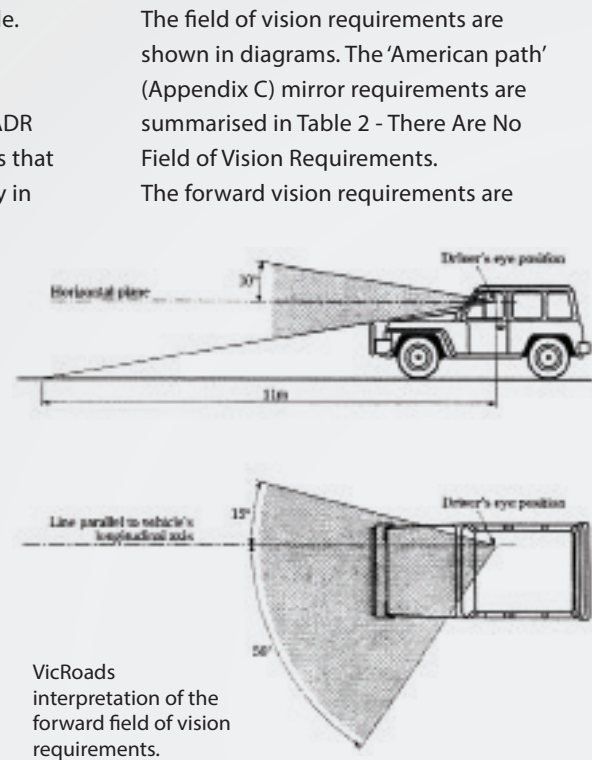




PETER HART

European and American views of the road

specified in Appendix C of the rule. It is the 'American path'. I want to convince you that the 'American path' (Appendix C) in ADR 14/02 is inadequate. The reason is that the vision of the road, particularly in a city environment, that the 'American path' allows, is poor. Anticipating that flat-mirror-loving-drivers will arc-up at this suggestion, I argue that the 'American path' should be amended to require Class IV, V and VI mirrors as well as the large main mirror. These additional visibility requirements could also be met using cameras. There are six types of mirrors identified in UN ECE R46 ('the European path'). Table 1 summarises the requirements.



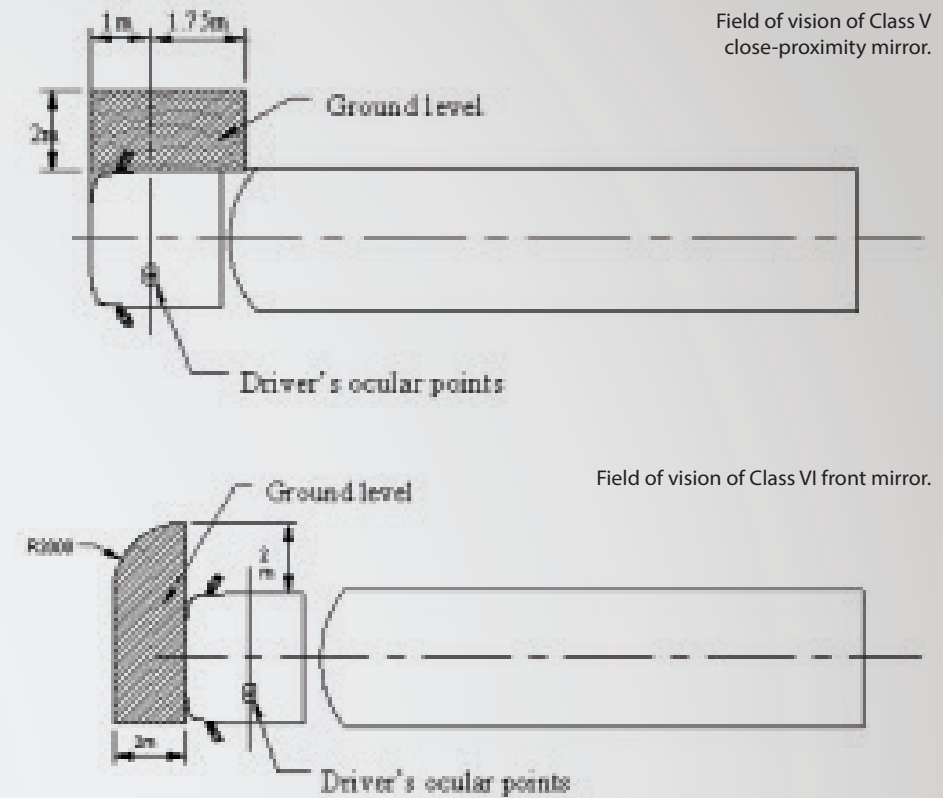
Name of the mirror	Class of mirror	Requirement for a Truck (Category NB or NC)
INTERNAL REAR VISION	Class I	Optional
LARGE MAIN MIRROR	Class II	Compulsory on both sides. The reflectance must be at least 40 per cent. The minimum area is approximately width=17cm x height=20cm. The Main exterior mirror (Class II for a truck) can have a flat surface or a spherical surface. The radius of curvature must be no less than 1200mm.
SMALL MAIN EXTERIOR	Class III	Not permitted.
WIDE ANGLE EXTERIOR	Class IV	Compulsory. To achieve this, the mirror will be convex.
CLOSE-PROXIMITY EXTERIOR	Class V	Compulsory on the passenger side, optional on the driver side. The field-of-vision requirement is in Figure.
FRONT	Class VI	Compulsory. The field-of-vision requirement is shown in Figure.
ADDITIONAL		Mirrors may have an additional asymmetrical part assuming the main part of the mirror meets the requirements of the rule. The rule is silent about additional mirrors.

Mirror requirements in the 'European path' (UN ECE R46 path) in ADR 14/02.

specified in ADR 42/04 General Safety or in ADR 93/00, Forward Field of Vision. The basic requirement is so weak as to be meaningless. The requirement is that there must be "an adequate view of traffic on either side of the vehicle and in all directions in front of the vehicle to enable the vehicle to be driven with safety". The 'European path' to forward vision is in the optional rule ADR 93/00 and is based upon ECE Regulation 125. It requires that a 1200mm high cylinder of diameter of 300mm that is placed 2m in front of the vehicle be visible to the driver. Few trucks comply with this via direct vision, but all could if a camera system is used. There is a Victorian vehicle standards information bulletin VSI 29 Field of Vision that tried to quantify the forward field of vision requirements. The left illustration shows the VicRoads interpretation. Long bonneted trucks cannot comply with this because the roadway cannot be seen 11m in front of the driver. Trucks with long sun visors cannot comply because there is not visibility to 10o above the horizontal. Police in Victoria have applied these limits, although they are not based on the Australian Design Rules.

Name of the mirror	Requirement for a Truck (Category NB or NC)
INTERNAL REAR VISION.	Optional
LARGE MAIN MIRROR – DRIVER SIDE.	Compulsory. The mirror must be flat. The mirror may project 230 mm beyond the point of overall width of the (combination) vehicle provided it can collapse to no more than 150mm beyond the overall width line. The reflectance of the surface must be at least 35 per cent. The minimum area of the reflection surface is 150 cm ² . There is no field-of-vision requirement. It is difficult to meet the European requirements using a flat mirror.
LARGE MAIN MIRROR – PASSENGER SIDE.	Compulsory. The mirror may be flat or curved. The average radius of curvature must be at least 1200mm. Each mirror may project 230 mm beyond the point of overall width of the (combination) vehicle provided it can be collapsed to no more than 150mm beyond the overall width line. There is no field-of-vision requirement.
ADDITIONAL MIRRORS	Additional mirrors are allowed if they do not protrude outside the limits that are mentioned above.

Mirror requirements in the Appendix C path ('American path').



The forward vision rules (ADR 42/04 and ADR 93/00) and the rearward vision rule (ADR 14/02) are inadequate because they do not require the road to be adequately visible around the truck. This is particularly true

for long-bonneted trucks. Camera technology now exists that can provide the driver with a wrap-around view of the space in front of, and to the sides of the truck cabin. This should be mandated. Currently, other road users are vulnerable when they are in these spaces. ADR 42 General Safety specifies that an image on a visual display screen must not be visible to the driver unless the image is a driver's aid. The rule allows an external image to the front, side or rear of the vehicle to be displayed, assuming it aids the driver to see objects relevant to vehicle safety. The image might be for example, an infra-red (thermal) image. There is an urgent need to improve the driver's view of the road close to some trucks, both in front and to the rear. The 'American path' to road vision is inadequate. Camera technology could be used to improve the view. Changes to the rules are needed!

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