

1 Application

User requirements

End user requirements and legislative obligations need to be considered once the type, size, load class and durability criteria of the trench drain have been chosen.

ACO can provide product guidance based on current industry standards and requirements. Test certificates are also available where testing has been carried out.



Accessibility

Trench drains are commonly used in public spaces where accessibility legislation is required. ACO supplies a variety of grates that are wheelchair and walking cane compliant without compromising on aesthetics or performance.



Heel and bicycle tyre safety

ACO has categorised grate safety into:

- Inlet size restrictions – complies with AS 3996.
- Bicycle safe – complies with AS 3996.



Grate security

ACO recommends that grates should be secured to prevent movement by vehicular traffic. If unsecured, the movement can cause damage to the trench channel and grate.



Aesthetics

The grate is the most visible part of the trench drain and aesthetically the most important component.

Grates can be selected to blend into the pavement or used as a feature or border.

For more information, see page 13.



Slip resistance

Slip resistance is crucial for user safety. Ideally, the slip resistance of the grate should be similar to the slip resistance of the surrounding pavement to minimise slip and trip hazards.



ACO Technical Services – Selection guidance and test data

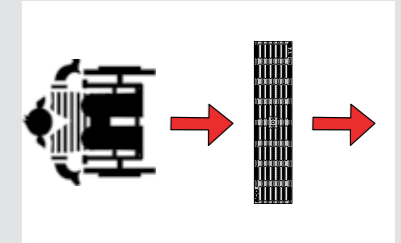


Wheelchair and walking cane compliance

AS 1428.2 Clause 9 *Ground and floor surfaces*, specifies grate requirements.

'If gratings are located in a walking surface, they shall have spaces no more than 13mm wide and no more than 150mm long. If gratings have elongated openings, they shall be placed so that the long dimension is transverse to the dominant direction of travel.'

The diagram shows the slots perpendicular to the flow of traffic. This prevents the wheelchair and walking aids from becoming trapped or slipping on the grate surface.



Pedestrian heel resistance

AS 3996 Clause 3.3.6 *Surface openings in pedestrian areas*.

Inlet sizes must be kept to a minimum to prevent heels from becoming wedged in the grate slots. A grate's inlet size has a significant effect on its hydraulic performance and must be considered as grate inlets clog up with silt and debris over time. ACO believes a 10mm slot is the optimum size for grates in pedestrian areas.



Bicycle tyre safety

AS 3996 Clause 3.3.7 *Bicycle tyre penetration resistance*.

AS 3996 Clause 3.3.7 specifies the maximum slot length dependent on slot width for grates that are deemed Bicycle Tyre Penetration Resistant.



Grate security and locking options

ACO provides a number of locking options:

Boltless locking – mechanisms that secure the grate without the use of bolts. They are quick to install and remove, making installation and maintenance easier. Boltless locking is suitable for most applications.

Bolt and other locking – bolts hold grates in place by fastening into either the frame or locking bar that straddles the trench. Occasionally, other types of locking devices are required such as tamper resistant bolts. Contact ACO for more information.



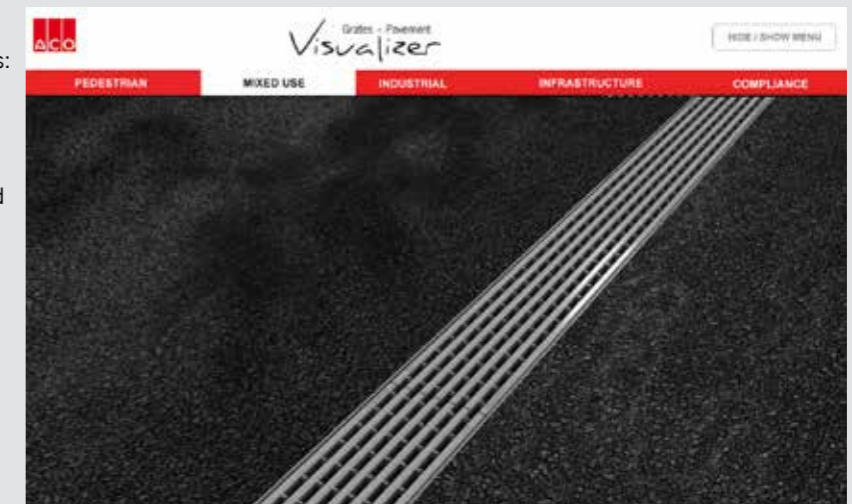
Aesthetic options

Consider the following options:

Grate materials – stainless steel, ductile iron and plastic can all provide excellent aesthetic design options. Monolithic trench drains are constructed from polymer concrete where the grate and trench channel is constructed from the same material.

Grate slot patterns – longitudinal, transverse and decorative patterns are available from ACO's grate range.

ACO offers an online grate **'Visualizer'** program that enables pavement and grate combinations to be viewed.



Slip resistance

AS 4586 *Slip resistance classification of new pedestrian surface materials*.

With an increase in litigation for injuries caused by slips, trips and falls, designers need to specify grates and floor surfaces that comply with AS 4586. A trip hazard may occur when a grate has a higher slip resistance rating than the surrounding floor surface. A slip hazard may occur when a grate has a lower slip resistance than the surrounding floor surface.

ACO grates are tested according to the methods outlined in AS 4586. The tests include: wet pendulum, wet-barefoot inclining platform and oil-wet inclining platform.