AUSTRALIAN GLASS & WINDOW ASSOCIATION

FREQUENTLY ASKED QUESTIONS: **Balustrade/Barrier & Pool Fence**

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What is the difference between the term balustrade and barrier?

Initially, the term "Balustrade" was used in Australian Standard (AS) 1288:2006, but the National Construction Code (NCC) references a "Barrier". AS 1288:2021 has since been updated to be consistent with the NCC. The term barrier rather than balustrade will be used here.

What is the difference between a barrier and a pool fence?

The purpose and application of each type are different, so requirements also differ.

A pool fence's primary purpose is to restrict children's access to the pool area to minimize drowning, but the primary purpose of the barrier is to prevent falls from height or to restrict access for the public. Two different Australian standards cover them. The requirement for a barrier is covered in AS 1288, and the pool fence requirements are covered in AS 1926.

In some scenarios, your installation needs to comply with both standards.

What requirements do I need to meet for a barrier?

The relevant provisions of NCC and requirements of section 7 of AS 1288.

Can a pool fence be a barrier?

Possibly.

If the pool fence meets the loading requirement of AS 1288 in addition to AS 1926, then the pool fence can be used as a barrier. The loading requirement of AS 1288 includes imposed live load and wind load of the site.

Can a barrier be a pool fence?

Possibly.

The minimum height for a barrier in the NCC (National Construction Code) is 1000 mm above the floor. To meet the minimum required height of a pool fence as per the requirement in AS 1926, the barrier must be 1200 mm high. Additionally, there must be nothing that allows climbing of the barrier as per the requirement in AS 1926.

Do I need a barrier that protects a fall of 800 mm below the level below?

No, you don't.

According to clause 3.9.2.2 of NCC 2019 Vol 2 and clause D 2.16 of NCC 2016 Vol 1, a barrier is not required where a barrier protects a height less than a metre.

Do I need a pool fence where it protects a height less than 1000 mm from the level below?

Yes, you do.

Regardless of protecting any difference in height in order to restrict access (child safety) to the pool area, a pool fence that complies with the requirements of AS 1926 is required.

What are the restrictions affecting the glass size and thickness in a barrier or pool fence assembly?

Both a pool fence and a barrier must be designed based on all the applied loads they can be subjected to. Human impact (impact live load) and wind load must be considered in the design.

Do I need to consider the wind load of the site or just check the imposed live load requirement for a barrier or pool fence installation?

Yes, you do. Wind load must be considered for any external applications.

As a Performance Solution, the testing laboratories in Australia only test a barrier system for imposed live load, not for wind load. Therefore, a qualified engineer (to provide a Performance solution) must assess a site's wind load and the barrier system's structural adequacy (under wind load) for a particular application. In most housing applications in NSW and VIC, the imposed live load is the governing restriction in the design of the glass, not the wind load. Therefore, in that case, it is ok to use the testing report as a glazing compliance certification. But in multi-level commercial/residential towers or for housing next to the beach or on top of a hill, the wind load is high and is the design's main factor.

So, case by case, both loads must be considered and assessed individually.

What kind of glass can I use for a barrier system?

Grade A safety glass must be used in the glazing of all barriers and pool fences.

Can I use Grade A monolithic toughened glass on the balcony on the fifth floor of a residential building?

No, you can't. Things have changed.

In AS 1288:2006, Grade A monolithic toughened glass can be used as barrier glass. However, the 2021 version of AS 1288 requires that if the barrier protects a height of more than 5 metres from the level below, then the glass has to be Grade A laminated safety glass.

Do I need a handrail for a barrier with spigot fixing?

You might need a handrail.

There is no DTS solution for the spigot system in AS 1288, so AGWA recommends consulting with an engineer regarding the design. The engineer could design the barrier system either with or without a handrail or the barrier system can be tested to see if it passes the loading requirement without a handrail.

For the scenarios below.

- What type of glass should I use?
- Do I need a handrail for the glass?
- Is it required to connect the handrail to the adjacent walls?
- Do I need to check the wind load as well?

a. Location: Epping, NSW, second story of a house.

- For a barrier with a spigot fixed, there is no DTS solution for glass selection in AS 1288. A performance solution is required for compliance and certification. Consult with your engineer.
- Whether you need a handrail or not is the decision of your engineer and depends on their design. Consult with your engineer.
- Whether you need to connect both ends of the handrail to the adjacent walls or not is the decision of your engineer and depends on their design. Consult with your engineer.
- In this application, mainly due to the location of the housing building, the governing factor for the glass

selection is imposed live load and not the wind load. All the design parameters need to be confirmed by your engineer as a Performance solution.

b. Location: Cairns City, QLD, level 6 of a hotel located 50 m from the coast.

- For a barrier with a channel-fixed connection, protecting a height more than 1 metre from the level below, section 7.4.5 of AS 1288-2021 provides some DTS solutions for imposed live load assessment. You can use table 7.1 of AS 1288-2021 for glass selection.
- Yes, as per the requirement of section 7.4.5 of AS 1288-2021, an interlinking handrail is required.
- If the handrail is connected to three or more adjacent glass panels where the adjacent panels are a minimum of 1000 mm wide, the handrail does not need to be connected to the adjacent walls.
- In this application, mainly due to the location (North QLD and very close to the shore) of this multi-level building, the governing factor for the glass selection is most probably wind load and not imposed live load.
- AS 1288 does not have any DTS solution for wind load assessment of cantilever glass. Therefore, a Performance solution is required for the assessment of the glass under wind load.

Do I need a handrail for a barrier that is fully fixed to an aluminium channel?

There are four possibilities:

1. **DTS solution, the barrier protects a height less than 1 metre from the level below.**

   No, you don't need a handrail

2. **DTS solution, the barrier protects a height of more than 1 metre from the level below.**

   Yes, you need an interlinking or load-supporting handrail.

3. **Performance solution, the barrier protects a height of less than 1 metre from the level below.**

   No, you don't need a handrail.

4. **Performance solution, the barrier protects a height of more than 1 metre from the level below.**

   You may or may not need a handrail. An engineer could design the barrier system either with or without a handrail, or the barrier system can be tested to see if it passes the loading requirement without a handrail.

How many types of barrier systems are there?

Two types.

There are two types of barrier systems, one is a **structural** barrier, and the other is an **infill** barrier. For the definition of these two types, refer to section 1 of AS 1288.

In a structural barrier, the glass panel itself is the structural element that carries any applied load.
In infill barrier panels, the glass panel is a component to fill a space or opening and is itself supported by posts, rails or other structural elements of the barrier system, and those supports provide the resistance to pressure and/or point load that is applied to the glass panel.

Do I need a compliance certificate when I install a glass barrier?

Yes, you do.

How can a compliance certificate be issued for a barrier?

Depending on the barrier **fixing type** and **application**, there are **two** pathways to show the compliance of a barrier system with the requirements of the National Construction Code (NCC).

The pathways are:

I. An AS 1288 glazing compliance certificate was issued by a glazier.

The first pathway is a Deemed-To-Satisfied (DTS) solution. Section 7 of AS 1288 provides the requirements for some specific design configurations and support conditions. When these requirements are met, a glazier can use these provisions to issue a glazing compliance certificate.

II. A report issued by an engineer or a certified NATA-accredited testing laboratory.

For more complex designs or scenarios that are not covered by the DTS solution of section 7 of AS 1288, a Performance Solution is required to show compliance with the requirements of the NCC. This solution can be an Engineering compliance certification or a report from a NATA-accredited laboratory that has carried out testing on the barrier system based on the relevant requirements.

The certifier will ask for one of these at the end of the job.

Fixing type:

- Channel fixed

  A DTS solution is available in AS 1288 for compliance and certification.

- Spigot fixed, point fixed or other fixing types.

  There is no DTS solution in AS 1288. A performance solution is required for compliance and certification.

Application:

- **Protects a height of less than 1 metre from the level below**

  A barrier as per Clause 3.9.2.2 of the NCC is not needed, but if it is decided to install a barrier, then, depending on the fixing type, either a DTS or a Performance Solution can be used.

- **Protects a height of more than 1 metre from the level below.**

  Depending on the fixing type, either a DTS or a Performance solution can be used.

Are point fixed or spigot-supported barriers covered by the DTS solution of AS 1288?

Generally, no, they are not.

However, AS 1288 provides some DTS requirements in section 7.4.7.3 only for infill barriers that are supported on two ends with a total of four fixings.

Does a pool fence with a spigot system need a compliance certification?

Yes, it does.
If the fence protects a pool at the height of less than 1 metre from the level below, it is a pool fence and not a barrier, so it needs to comply with the requirements of AS 1926. This means that a pool fence with a spigot system must be tested to comply with the human impact loading requirements of AS 1926.

A pool fence must also be able to withstand the wind load of the site.

I don't know whether my barrier assembly needs a Performance solution or not; how can I be sure about it?

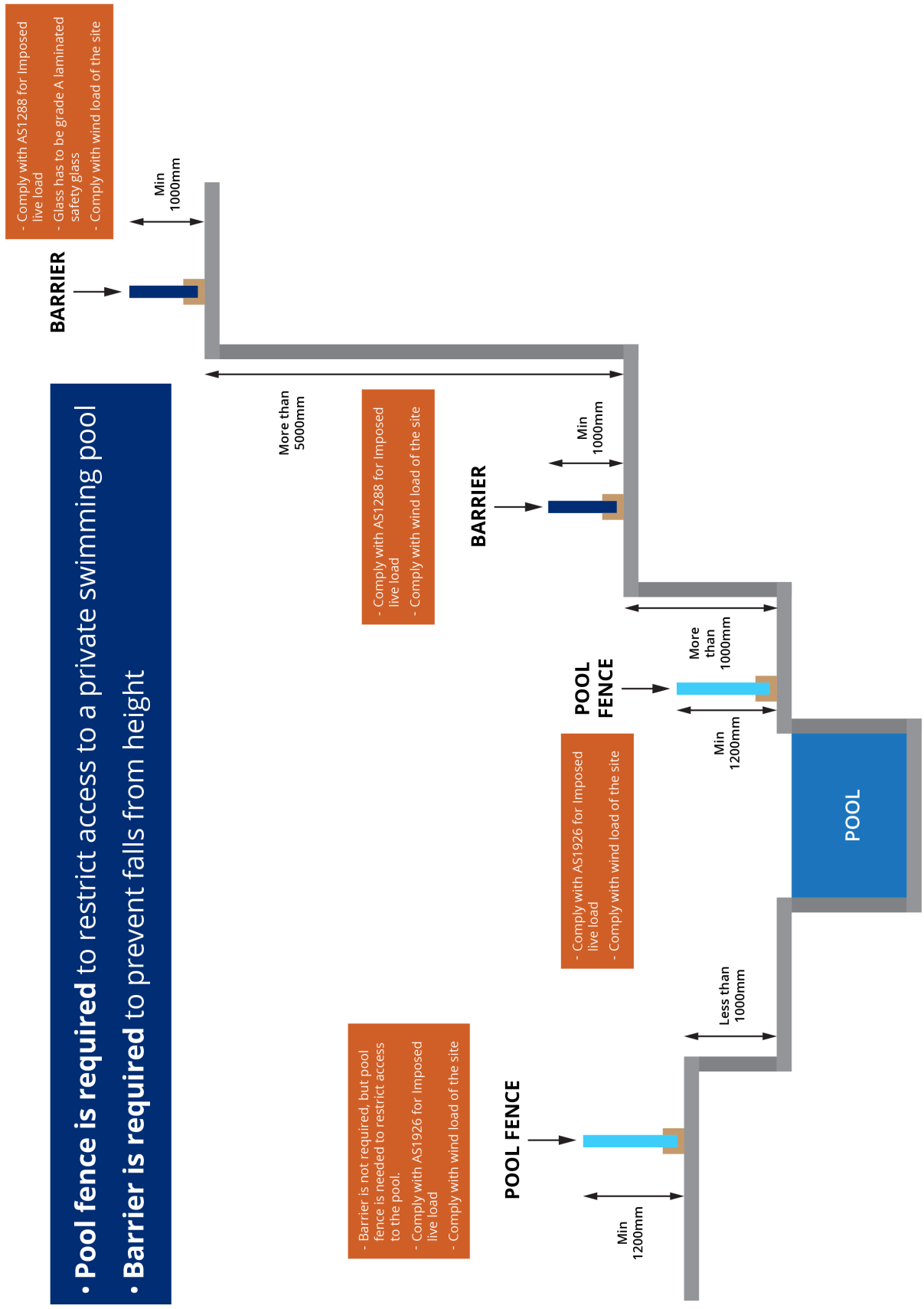
Members can contact the AGWA technical team. Our team of engineers and experts are able to assess your drawings or pictures of the site and advise you whether a Performance solution is required or if you are able to use the DTS solution of AS 1288. For a Performance Solution, we can refer you to some engineering companies that are able to help with your design.

If a supplier sells spigots only, can a glazier buy the spigot from them and use it for their barrier system?

Yes, provided it meets certain conditions.

Spigot suppliers usually test their spigot in a barrier system under imposed live load. For example, they test a spigot fixing with, let's say, 10 mm toughened laminated glass with specific dimensions under loading conditions as per the testing requirement of Appendix I of AS 1288-2021 and issue a testing compliance certificate as a Performance solution.

The spigot can be purchased from the supplier, and a 10 mm toughened laminated glass (paying attention to the span and dimension limitation of the glass) can be used for that particular application. We recommend following the instruction manuals from the fixing supplier for installation of the fixing to the subframe (concrete or timber).


• Pool fence is required to restrict access to a private swimming pool
• Barrier is required to prevent falls from height
BARRIER
- Comply with AS1288 for Imposed live load
- Glass has to be grade A laminated safety glass
- Comply with wind load of the site
Min 1000mm
More than 5000mm
BARRIER
- Comply with AS1288 for Imposed live load
- Comply with wind load of the site
Min 1000mm
POOL FENCE
More than 1000mm
Min 1200mm
- Comply with AS1926 for Imposed live load
- Comply with wind load of the site
POOL
Less than 1000mm
POOL FENCE
Min 1200mm
- Barrier is not required, but pool fence is needed to restrict access to the pool.
- Comply with AS1926 for Imposed live load
- Comply with wind load of the site