

## Responses to Questions on Graham's Terrace Door ADA Door Performance

The use of the term "ADA" with terrace doors is commonly misused, often the description of an "ADA" requirement may just be the requirement for a low threshold sill rather than the inclusion of the whole definition for an "ADA" accessible product. The ADA regulation is applicable to public buildings and public common space and applies to entrance doors but does not apply to residential spaces which would not include terrace doors unless they are being used as primary entrance doors (which terrace doors should never be used as an entrance door). The Fair Housing Act (FHA) would be the law governing our terrace doors which are considered to be secondary doors. This allows up to a  $\frac{3}{4}$ " interior leg height (without a ramp) and up to a 4" drop on the exterior and terrace doors are not generally subject to operating force or clear opening requirements. To meet the full ADA accessible requirements, the door must not only have the proper sill heights but also meet other requirements such as the operational requirements (force to open and close and handle types), slopes to and from the door opening, the clear opening width of the door and of course to have been tested to at least AAMA 513-14. The Graham terrace doors have not been tested to meet the full designation of an ADA Accessible product.

Graham offers several variations of its terrace doors in low profile (that can be used in conjunction with build ups around the door sills) and ADA compliant sills. Most of these designs have been tested in a laboratory environment or in the field as an installed field test. A standard terrace door, like most awning or casement windows, rely on the principle of pressure equalization to achieve its water performance. When a low profile or ADA compliant sill is introduced into the product, the water performance is strictly governed by the frame gasket making full singular contact with the door panel. As mentioned above some of these designs have been tested in a laboratory environment with very good success, however everything must be installed nearly perfectly and with the door gasket system remaining completely undamaged in the process. The smallest pin hole can generate some water infiltration as there would be no pressure equalization or sill dam height to inhibit the entry of water, however slight.

That is why Graham references the limited water test procedure developed by AAMA for side hinged entrance doors for these terrace door options.

It should be noted that most terrace doors are typically sheltered by balconies or exterior roof coverings so the possibility of the door being subjected to anything more than casual water is low.

Another issue that can affect the performance of the door is the operational mode (i.e. swing). An outswing door has better performance properties since the pressure tends to close the door tighter against the gasket where the inswing tends to have the panel pushed away from the gasket during testing. Under normal circumstances these differences are incorporated into the design of the door, but again the smallest pinhole can cause minor infiltration which can technically be considered a failure.

AAMA is in the process of reviewing its standard for ADA compliant products to include terrace doors with a Limited Water performance rating to acknowledge this issue.

If the doors are to be subjected to extreme winds and rains that would require a higher performance, Graham's recommendation is to use our standard high performance sills and other construction modifications to accommodate the sills.

This issue would be the same for any competitor's door if pressure equalization is not incorporated in the design of the door sill. You should also consider that door sills are typically subjected to abuse during construction and during normal use, as any access door would, so this can lead to damage of the sill weathering system that will have a negative effect on the performance of the door.

When considering the use of these low profile or ADA compliant sills on our terrace doors you should carefully consider the application and consult Graham's engineering or technical service departments for specific details and recommendations. Project specifications which fully delineate the performance criteria and drawings will aid in a determination as to which sill option is best.

Our recommendation when using ADA applicable sills for terrace doors is to reference the AAMA Limited Water Standard (LW) for entrance doors which calls for 0 psf with the standard 5 gallon per square foot water spray.