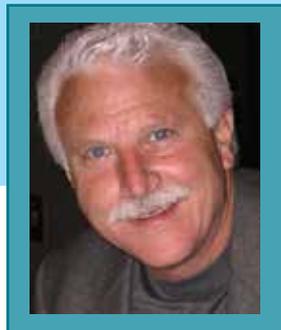


BY THE BOOK



Curbless shower design: requirements and options

By Donato Pompo, CTC, CSI, CDT, MBA, Ceramic Tile and Stone Consultants (CTaSC); University of Ceramic Tile and Stone (UofCTS)

Curbless showers are showers without a raised shower dam as is traditionally found in tiled showers. Initially, curbless showers were necessary to facilitate shower access by wheelchair users, particularly in public facilities like hotels and hospitals. Now curbless showers are popular for their look.

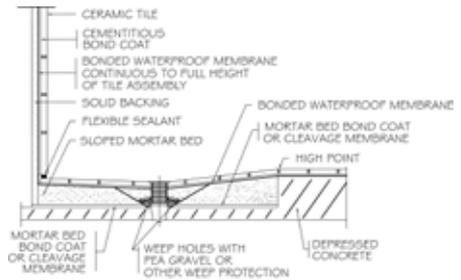
To ensure successful installation of this increasingly in-demand shower style, specifiers and installers must know the requirements and options for constructing them. With the dam removed to make a shower “curbless,” it becomes extremely important to utilize alternate means for managing the water, which is accomplished primarily through slope, waterproofing, and water-containment techniques. A few things I always recommend are:

- Ensure the shower floor is sloped 1/4” per foot toward the drain. This can be difficult when the drain is in the center of the shower floor. Linear trench drains are getting more popular since they can be located at the back of the shower, which is more practical for providing floor slope and accommodating a wheelchair. Many also find them more aesthetically pleasing.
- The bathroom floor outside the curbless shower must be the high point of the room so water can drain toward the shower.
- The bathroom door threshold can act as a quasi-dam, to prevent water that migrates outside of a curbless shower from migrating outside of the bathroom entirely.
- All transitions and penetrations in the room must be sealed with an ASTM C920 sealant.



To ensure successful installation of the increasingly in-demand curbless shower style, specifiers and installers must know the requirements and options for constructing them.

Proper construction of accessible and curbless showers can be tricky, due to the many codes and standards that must be referenced to ensure compliance. There are national and international building and plumbing codes, local codes, and tile industry guidelines. Any combination of these may apply to any given shower. If, in addition to being code-compliant, a curbless shower must also be handicap-accessible, there are also the federal requirements of the Americans with Disability Act (ADA), given in the *2010 ADA Standards for Accessible Design*.



SHOWER RECEPTORS, CURBS, SEATS, ETC., MUST BE PROPERLY WATERPROOFED AND INSTALLED TO AVOID WATER DAMAGE TO ADJACENT BUILDING MATERIALS. SEE COMMON SHOWER CONFIGURATIONS SECTION.
FOR MORTAR BEDS OVER 65 S.F., WIRE REINFORCING IS REQUIRED.

Curbless shower methods B421C (shown) and B422C, are voluntary guidelines. They require a continuous bonded waterproof membrane on the floor and walls of the shower itself, with that waterproofing extending outside the shower at least one foot beyond the high point of the floor.

To waterproof or not to waterproof, that is the question

Recently, required waterproofing of bathrooms adjacent to curbless showers has been a topic of discussion, likely resulting from a change to the *2015 Uniform Plumbing Code (UPC), Chapter 4 Section 408.5*, which now says: “The immediate adjoining space to showers without thresholds shall be considered a wet location and shall comply with the requirements of the building, residential and electrical codes.” Some interpret that to mean that such areas must be waterproofed. I do not interpret the code change that way, as there are no requirements given in International Building Code (IBC), International Residential Code (IRC), or Electrical Code to waterproof wet areas. The interpretation that waterproofing is required likely stems from thinking of wet

area requirements in the context of tile industry practices, which often relates to waterproofing.

UPC lists one variety of curbless shower – those designed to their accessibility standards – as an exception to its aforementioned requirement to follow IBC, IRC, and Electrical Code. These showers are instead subject to design criteria given in a table (Table 1701.1), but none of the requirements in that table refer to waterproofing either.

Likewise, the *2016 TCNA Handbook* does not require full waterproofing of a curbless-shower-adjacent bathroom. Curbless shower methods B421C and B422C, which are voluntary guidelines, require a continuous bonded waterproof membrane on the floor and walls of the shower itself, with that waterproofing extending outside the shower at least one foot



This is an example of a ceramic tile curbless shower adjacent bathroom floor sloped the wrong way. Proper installation should have the floor sloped towards the shower drain.



This natural stone tile curbless shower has the adjacent bathroom floor sloped the right way towards shower drain. The waterproofing under the stone was continued up the wall 3" at the base. These two measures help contain water in the event of a leak, preventing expensive water damage to adjacent areas and beyond.

beyond the high point of the floor; additional waterproofing outside the shower is suggested as a consideration, but not required.

Nonetheless, although my interpretation is that waterproofing of a bathroom adjacent to a curbless shower is optional, I always strongly recommend full waterproofing of the floor, with the waterproofing flashing up the walls at least 3", to avoid water damage in those areas. I have found that when consumers become aware of the option to waterproof the entire bathroom floor or not, they will pay the added cost for the added value and protection. On the other hand,

when consumers were not given the option, and then have a leak incident in their bathroom that resulted in water traveling below through ceilings and into adjacent rooms causing great collateral damage, they are very unhappy with their tile supplier or installer for not giving them a choice. So you are doing a disservice to your customers if you don't give them a choice, which at the same time helps limit your liability.

Is a curbless shower allowed?

Interestingly, while some codes address how to construct a curbless shower, others address whether a



This natural stone tile curbless shower adjacent bathroom floor is sloped the right way towards shower drain. The level demonstrates that the shower receptor is sloped towards the drain, located in the back of the shower.

curbless shower is even allowed. Some local codes prohibit curbless showers due to how they interpret the UPC, while other local codes provide guidelines, with some requiring that adjacent bathroom floors be waterproofed as a continuation of the shower. In such cases, waterproofing of a bathroom adjacent to a curbless shower goes from recommendation to requirement due to local code being more stringent and specific than UPC.

In addition to UPC, several other building codes address shower construction: *International Plumbing Code (Section 417)*, *International Residential Code (Chapter 27, Section P2708)*, and *International Building Code (Chapter 11, Accessibility Section 1107.6.1.1, Chapter 25 sections 1210, 2509, and 2511)*. Although they, too, leave waterproofing of bathrooms adjacent to curbless showers optional, it's important to be familiar with their requirements to ensure shower compliance in all other respects.

When utilizing codes and guidelines, be sure to reference the correct edition. Code bodies have "code cycles" for making changes and updates, and states, counties, cities, etc., adopt and adapt codes on their own timelines. Often, the code in effect in a given locale is not the most current version available, making it even more challenging to construct a curbless shower "by the book."

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