Installing Trench Drains in Curbless Showers

Many consumers and professionals in the design and building industries are aware of the advantages of curbless showers. Each year, more and more curbless showers are being requested in residential settings. Despite the recognized advantages, many architects, builders and homeowners are reluctant to install a shower without a center drain and a 2- to 4-inch dam or threshold.

Several misperceptions may be at the root of this reluctance. One is that water cannot be contained in the shower and may leak out into the room or saturate the subfloor. A second misperception is that curbless showers are primarily an institutional option.

What is a Trench Drain? A long narrow trough that runs along the open side of a curbless shower. Water flows across the shower floor into the "gutter" (or trench) and into a standard drain. The trench is covered with a metal or plastic grate, flush with the shower and room floor. This *Tech Sheet* shows suggested installation details in two different construction types: wood frame and structural concrete slab.

Advantages of Trench Drains. Since trench drains are an effective method of controlling water, especially if waterproof membranes are used and correctly installed, designers and builders can be more confident that unwanted water infiltration will not occur.

A shower floor with multiple compound slopes to a center drain is difficult and unsafe for many people, e.g., a person unsteady on his or her feet or someone using a freestanding shower chair or a shower wheelchair. When curbless showers are constructed with a trench style drain, compound slopes in the shower floor can be eliminated and a stepless entry provided. A floor with a single slope is safer for most users and makes it possible to install the same tile size throughout the bathroom and shower.

Tech Sheet

Growing Acceptance. In the US, curbless showers with trench drains have been installed for years in some special use occupancies. Internationally, they are a commonly accepted and aesthetically integrated residential option. More attractive examples of curbless showers using quality finishes are being built and publicized, contributing to a growing appreciation for this bathing option.

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This information provided by

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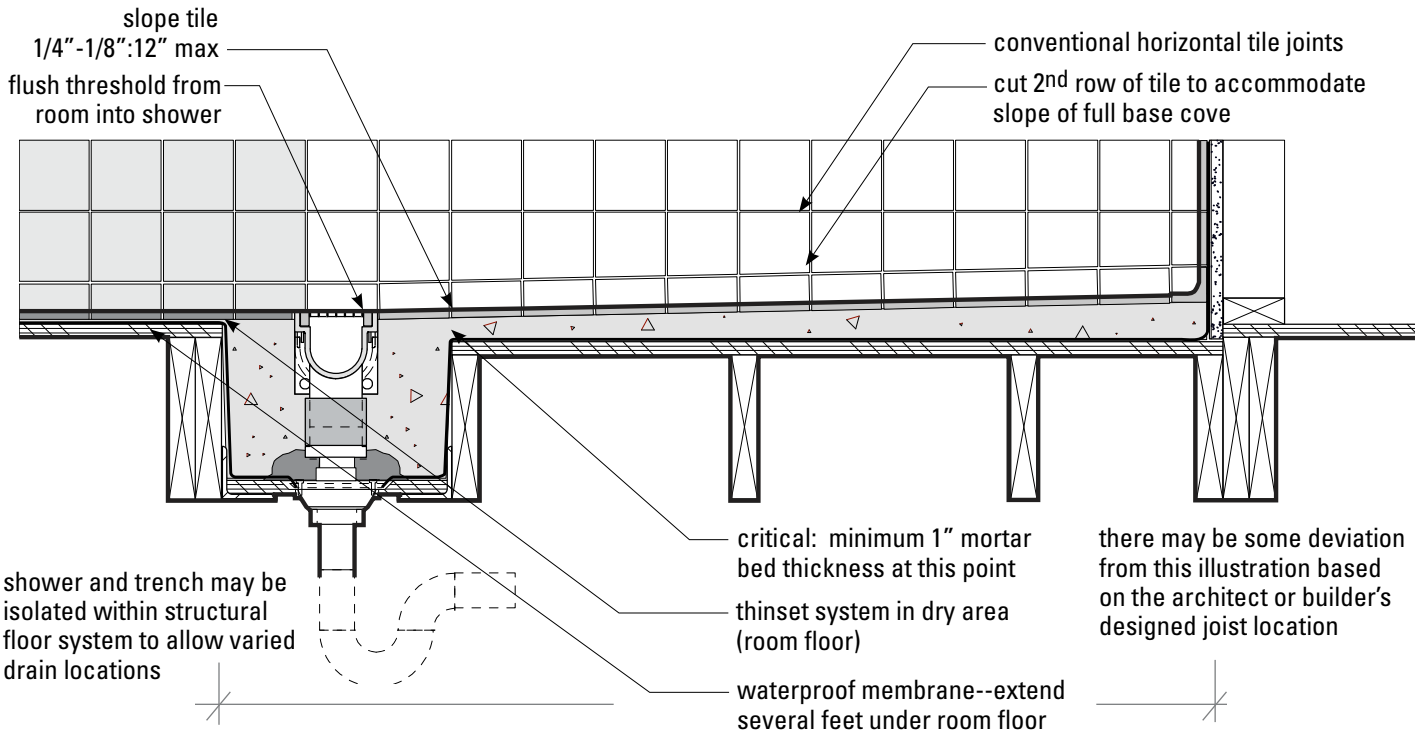
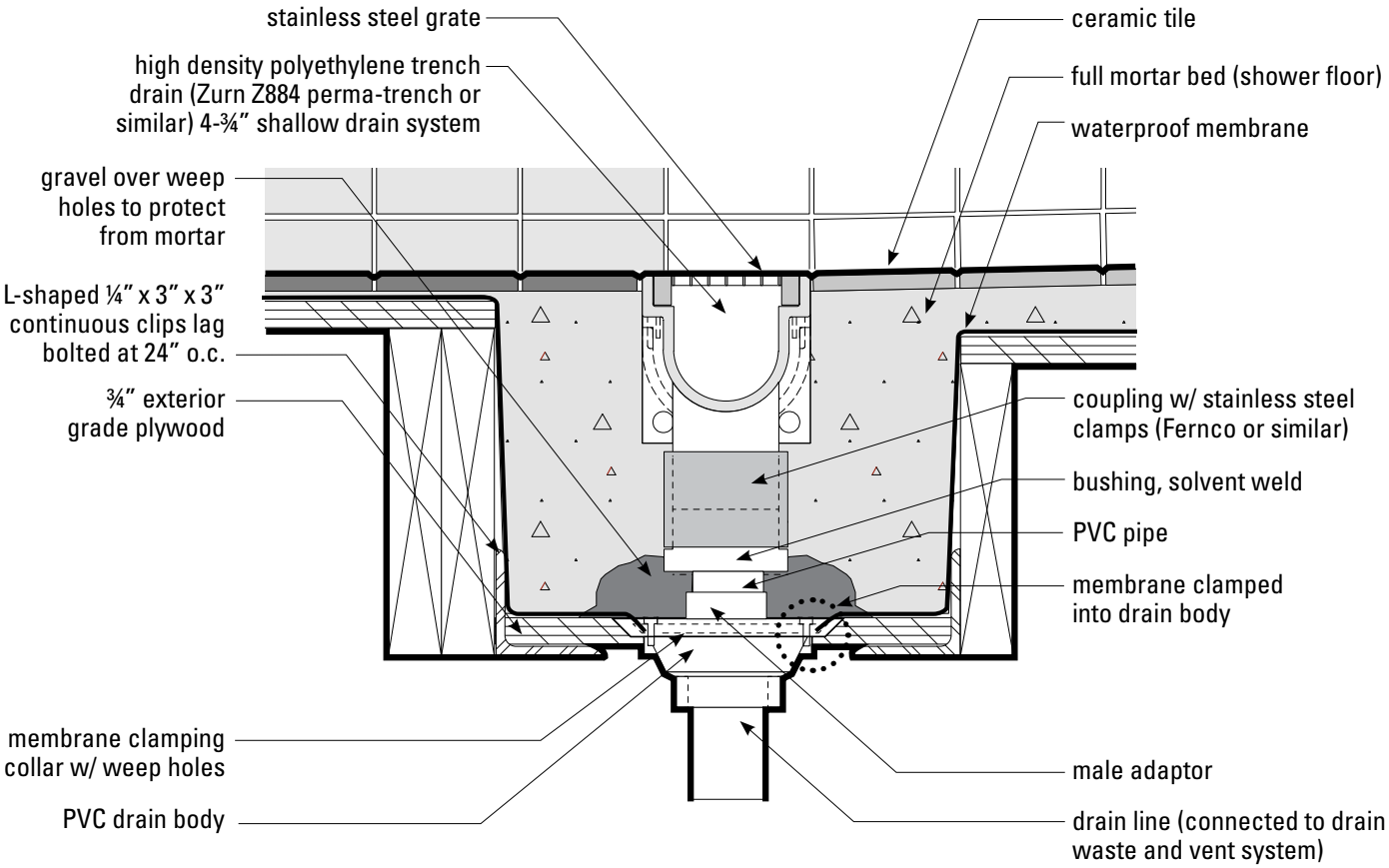


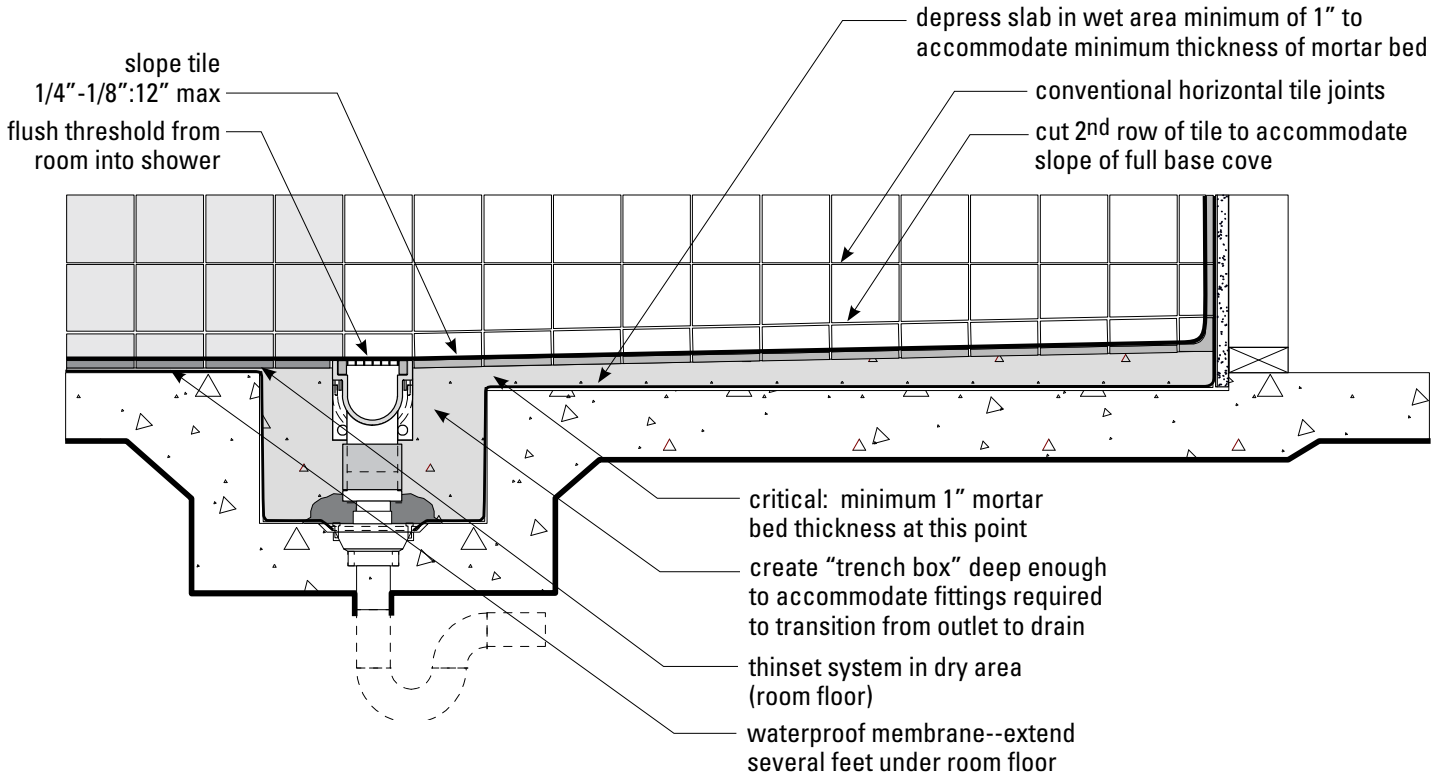
Trench Drain

Wood Frame Construction

Recommended: extend membrane under entire bathroom floor and turn up 4" at all walls. Consider adding an upturned sleeve at toilet drain.



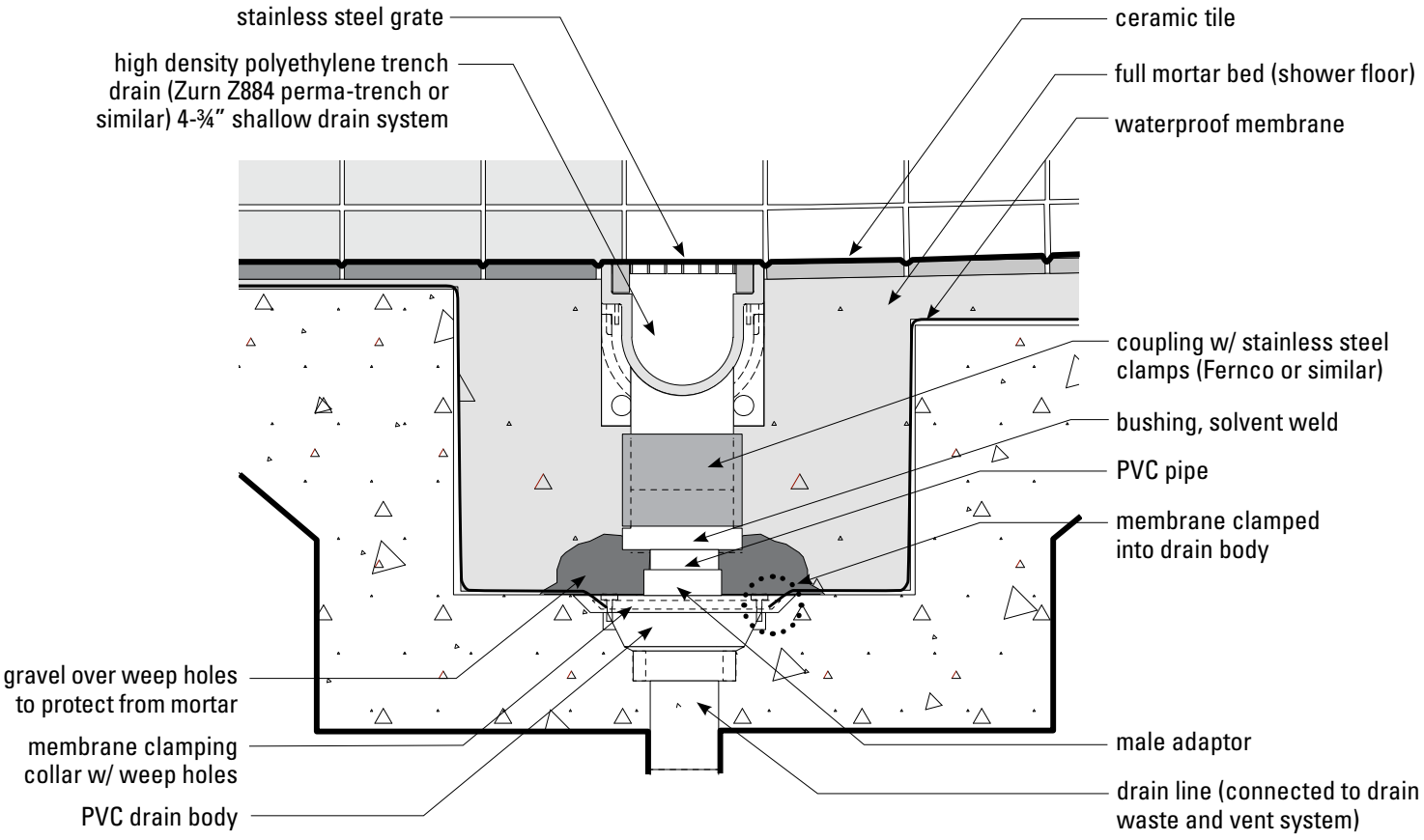
Suggested Detail: Wood Frame



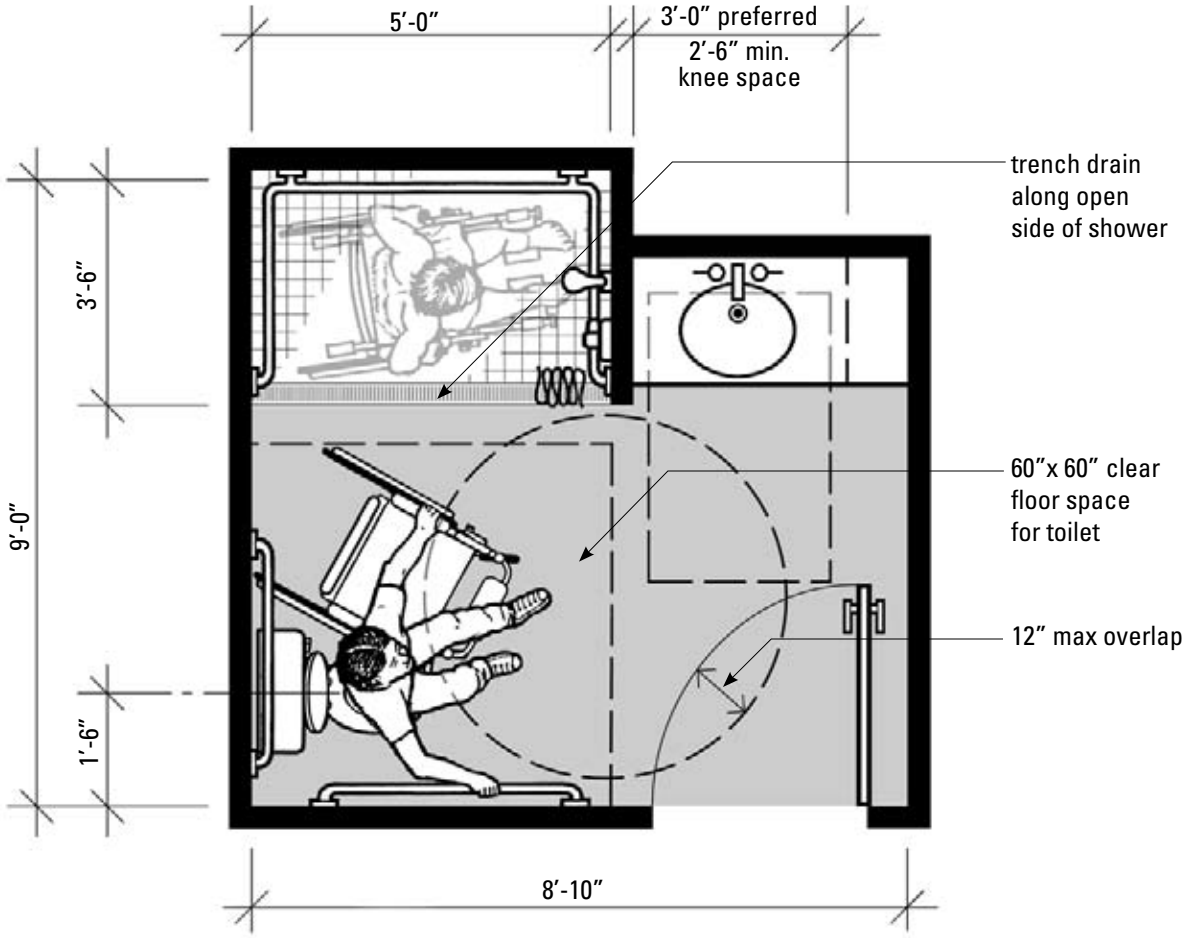
Trench Drain

Structural Concrete Slab

Recommended: extend membrane under entire bathroom floor and turn up 4" at all walls. Consider adding an upturned sleeve at toilet drain.



Suggested Detail: Concrete Slab



Sample Bathroom Plan with Curbless Shower and Trench Drain

Meets the requirements of both the NC Accessibility Code for Type A Units and the NC Housing Finance Agency's Qualified Allocation Plan (QAP). Smaller bathroom designs are possible when full accessibility is not needed. See the QAP Bathroom Tech Sheet on the CUD website for other options.

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TRENCH DRAIN TIPS

- Quality materials and careful installation must be used to ensure a leak and maintenance free shower.
- Curbless showers must include waterproof membranes, non-slip floor materials, and no abrupt change of level greater than 1/4 inch.
- The drain assembly, excluding the trench and grate, can be fabricated using common plumbing parts for less than $75.
- Membrane should be clamped into the drain body.
- Shower floor slope should not exceed 1/8 – 1/4 inch per running foot.
- As with all shower installations, caulk should never be used as a primary leak prevention method.
- Cast or molded trenches are best. A sampling of sources includes: Strongwell, Zurn, and ACO Polymer Products, Inc.
- Common materials for grates include stainless steel, fiberglass, and plastic. Grates should be light enough to remove easily for cleaning.
- Prefabricated curbless shower units with built-in trench drains are not as durable as custom-built designs. It is strongly recommended that a waterproof membrane be used even when installing a prefabricated unit. See *Curbless Showers: An Installation Guide* (available at www.centerforuniversaldesign.org).
- A sampling of sources for prefabricated shower units includes: Comfort Design Bathware (design development underway) and Watermark Solid Surface.

6/07 - 2000 copies printed at a cost of $330 or $.165 per copy by Corporate Press