

When considering a custom shower design, it is important to determine how much water you will need. While a standard shower faucet may use 2.5 GPM of water, a custom shower system may use 12-15gpm or more. You should consult with your contractor to determine:

- What are the requirements of your new shower system?
 - Are your water pipes large enough? (1/2" vs. 3/4")
- Can your water supply and/or well handle the volume requirement? (private home well systems typically produce 5-12gpm)
- Can your water heater provide enough HOT water (Check with your contractor to confirm the above)

Pressure, pressure, pressure.....

The next consideration is the amount of water pressure you have?

- Standard showers are designed for 30psi of water pressure
 - Custom shower often require 40-45psi
 - Well systems typically provide 30-50psi

ABC's of Custom Shower Design

1) How many shower outlets?

Just add them all up. The sum total flow rate of all shower outlets (showerheads, hand showers, and/or body sprays combined cannot exceed the maximum flow rate of the shower valve at a given water pressure. Exceeding the capacity of the valve will lower the overall performance of the custom shower system (especially when everything is on at once).

2) The Valve:

It is best to use a thermostatic temperature control valve – preferably 3/4". A high output thermostatic valve will not only give the needed flow, but more importantly - it will control and maintain the temperature.

3) Volume Controls:

Custom showers are generally designed with separate on/off (volume) controls. Typically:

- (1) for the shower head,
- (1) for every three body sprays
- (1) for the hand shower.

These volume controls have their own flow rate; 3/4" valves are recommended.

Remember 3/4" will give you up to 16gpm (at 45psi), 1/2" will give you up to 8gpm (at 45psi)
If the sum of the outlets is greater than the volume control, you will loose performance (pressure).

4) Body Sprays:

Any time two or more body sprays are used, they need to be installed in a "pressure balancing" loop. This ensures that all sprays have the same flow, pressure & temperature.

5) Hand Showers:

These are important for 3 main reasons:

- Personal hygiene
- Alternate shower head height for other family members (children etc.)
- Ease of cleaning the shower area

Hand showers can be mounted to the wall via a holder or a slide bar. Using a slide bar or shower bar enables the user to change the height and angle of the hand shower so that it can function as a showerhead or as a body spray. Some hand showers also feature a twist-free operation that prevents the hose from kinking and keeps the hand shower from twisting from side to side when resting in the holder.

6) : Shower Heads Rain Heads

- They can be mounted on the wall
- They can have long or short shower arms
- They can be mounted to the ceiling
- Lots of shapes, sizes, spray patterns and features

7) Spray Patterns:

- Normal spray – an overall wide spray designed for full water coverage
- Rain spray – A full-bodied spray which envelops and caresses the body
- Jet spray – A vigorous needle spray pattern for focused stimulation of the skin and muscles
- Massage spray – An energizing, massaging action for an invigorating shower
- Nebulizer spray – A soft effervescent spray super-aerated with millions of tiny air bubbles for a sensuously satisfying shower

1) Shower Drain:

Yes the drain is important. Large systems using (2) high flow valves can produce up to 36gpm of water. That means in a 5 minute shower you could have 180 gallons of water looking to drain somewhere. While a standard shower system requires a single 2" drain, larger systems should use (2) 2" drains or (1) 3" drain. Channel Drains are the latest option for draining your Custom Shower and are typically Stainless Steel with 2" outlets.

2) Hot Water:

The bigger the shower, the more hot water you will need. A 50 gallon gas water heater will supply a (4) outlet shower for about 8 minutes. For best performance it is suggested that the customer have a 75-100 gallon water heater or a continuous flow / tankless type

Design Considerations:



A) User height is one of the critical factors in setting the heights of shower outlets in the custom shower...and all users should be taken into account. Children and anyone confined to a wheelchair can be accommodated with a height adjustable hand-shower bar.

B) The shower head should be set at a level above the head of the tallest user but not out of reach for shorter users (excluding children). The reasons are simple: taller users should not have to duck or crouch to rinse their hair; shorter users need to be able to reach the shower head so that they can manually adjust the spray pattern of the head, and the angle of the water flow.

C) The top-level body spray is normally set at shoulder or back height. It should not spray horizontally into a user's face or ears.

D) The mid-level body spray is normally set at waist or hip level.

E) The lowest-level body spray is normally set at thigh or knee height. *Note: Body sprays, no matter how many are installed, are primarily intended to have the entire body covered by water no matter which direction the user faces. Body sprays should be installed on a different wall from the shower head, whether facing it or perpendicular to it, so that the body sprays flow from a different angle from the shower head. Do not aim body sprays at the shower door.*

F) The thermostatic temperature control valve should be set at approximately waist height and should be easily accessible.

G) Volume controls (on/off valves) should be easily accessible to anyone using the shower, usually about waist high and slightly above the thermostatic valve (depending on piping requirements). And, as with the thermostatic valve, volume controls should be easily accessible.

Two Wall Shower with volume controls – each shower outlet has it's own on/off (volume) control and they can be run individually or at the same time.



Two Wall Shower with a Diverter – The diverter is used to “switch” the from one shower outlet to another. Diverter are less expensive than volume controls and are used when:

- You do not want/need both outlets on at the same time
- You do not have enough water flow/pressure to run outlets at the same time



A **3-way transfer valve** allows you to use any one of three shower outlets

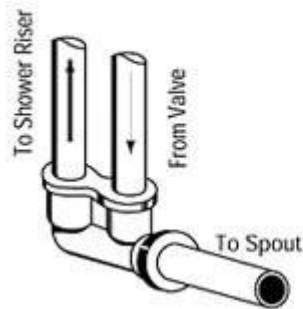
Twin Ell

When you are using a thermostatic valve in a tub/shower application and you are using a tub spout with a built in diverter, then you must use a twin ell

Miscellaneous Twin Ell, 03 671

[Add this item to My Project](#)

[Main page](#)



Definition

Required for shower/tub combinations with diverter spout (excluding Grohemp rough-in valve 34 901 and all Carohsafe and Tempasafe rough-in Pressure Balance valves).

Flow Rate

No Data Available

Code Compliance

* ASME/ANSI A112.18.6

Finish Options

03 671 000 Rough Brass

This is because Thermostatic valves have no built-in on/off (volume controls) so there is no way to direct the water to the shower head. Plug the top port and force the water downwards. Next you would have your volume control (on/off) valve. When you pull the diverter on the tub spout, the water is forced back up through the twin ell and to the shower head.

Only thermostatic valves with built-in volume controls AND built-in by-pass for the tub spout do not require twin ells in when used with diverter spouts.