

PLUMBING AND MECHANICAL
INTERPRETATION MANUAL



CODE: 2003 § 2006 IPC & IRC

DATE:

CODE REF: Table 709.1 7 IRC Table 3004.1

1/9/2008

SUBJECT: 2" Shower Drain Reduction

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Question: Can a 2" shower drain be reduced to 1 ½" to connect to a minimum size 1 ½" p-trap (Table 709.1) with being considered a restriction (704.2)?

Answer: The transition from 2 inch to 1-1/2 inch occurs in a vertical section of pipe. At first glance, it would logically seem that Section 704.2 would also prohibit this arrangement. However, there is code change history and logic that allows this arrangement to be acceptable.

Many code editions ago; the shower drain trap size was required to be 2 inch. Manufacturers of drain assemblies for showers developed their shower drain product lines starting with the 2 inch size.

The code was changed to allow a 1-1/2 inch trap size for showers based upon the fact that flow rates from shower heads were mandated to be no more than 2.5 gpm and the 1-1/2 inch trap size coordinated with what is allowed for a bathtub (where the same restricted flow shower head is used). Since there was no logical basis to continue to require a shower to have a larger minimum trap size than the tub, the code was changed.

However, drain manufacturers did not immediately become aware of the change in the code and as such, did not produce drain assemblies for 1-1/2 inch pipe. In other words, only 2 inch drain assemblies were available but the code allowed 1-1/2 inch traps to be used for showers. Since the code is silent on requiring trap sizes to match drain outlet sizes, and products were not available, this 'mismatch' had to be reasonably accommodated.

Therefore, where the transition from the 2 inch drain body to a vertical 1-1/2 inch pipe, a reducer is allowed because in most cases, there isn't any other way to make the connection. If a 'ledge' is created in reduction (such as where a reducing bushing is used), the reduction is no worse than the reduction that occurs within the drain body itself. Control turbulence is also not an issue as flow is already fairly turbulent from transition through the drain body.

More recently, shower drain manufacturers are finally starting to provide some configurations of shower bodies with 1-1/2 inch connections. However, availability can be spotty at best due to plumbing component suppliers not wanting to expand inventories. Therefore, the reducers' method of connection continues to be allowed by most jurisdictions.(ICC Interpretation)

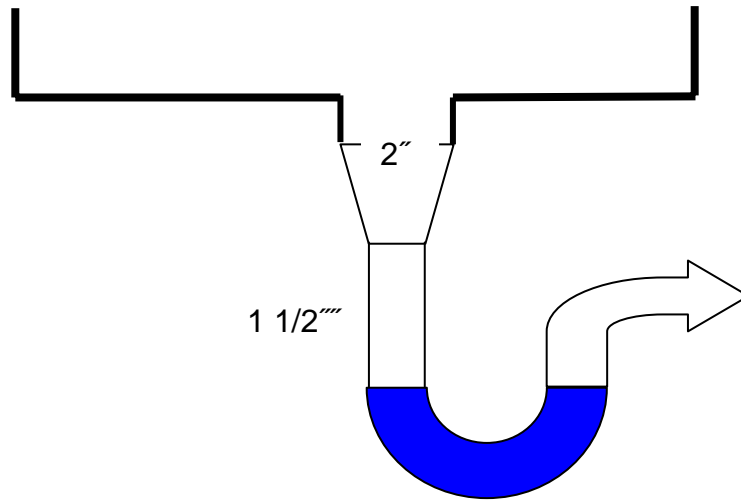
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Conclusion: The transition from 2" to 1 1/2" would not cause any problem as long as it is as close to the shower drain as possible to the shower pan fitting. A shoulder bushing would not be appropriate for this reduction but a bell reducer would provide a smooth transition to the reduced size.



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