

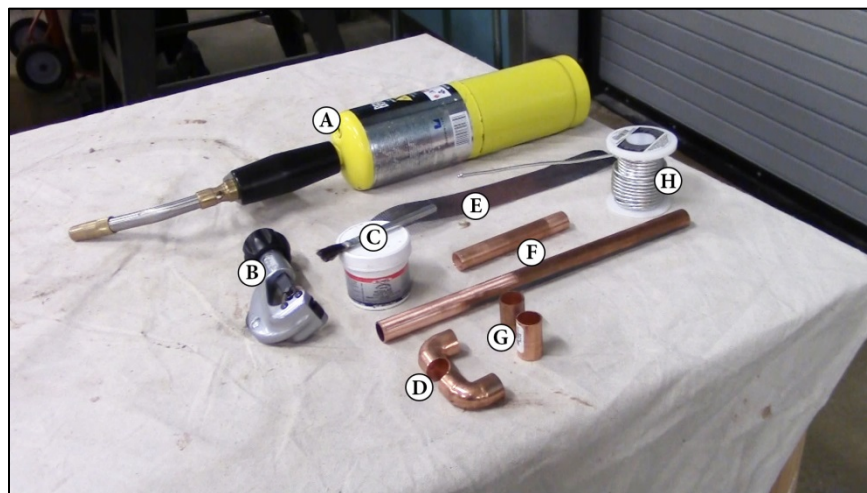
# INSTALLING FITTINGS ON WATER SUPPLY LINES

A handout containing the highlights of the video titled *Residential Plumbing and Repair: Water Supply and Fittings*

## Copper supply line

### Materials

These are the materials used in the video for the segment of installing a fitting on copper supply line.



CAPTION 1. A PHOTO OF THE MATERIALS USED IN THE VIDEO FOR INSTALLING A FITTING ON A COPPER SUPPLY LINE

- a. Auto torch (with MAP gas)
- b. Pipe cutter
- c. Flux and flux brush
- d. 90-degree elbow (copper)
- e. Emery cloth
- f. Sample copper supply line (half-inch)
- g. Couplers
- h. Lead-free solder

## Cutting the copper pipe

1. Set the copper pipe in-between the wheels of the pipe cutter and the blade. Then slowly tighten the cutting wheel to the pipe.



CAPTION 2. THE INSTRUCTOR SHOWS WHERE TO PLACE THE COPPER PIPE ON A PIPE CUTTER.

2. Turn the pipe cutter around the pipe, tightening the cutting wheel to the pipe with each turn which then scores the pipe. Continue this process until the pipe is completely cut.



CAPTION 3. THE INSTRUCTOR DEMONSTRATES HOW TO CUT THE PIPE USING THE PIPE CUTTER.

3. After the pipe has been cut, check to make sure that the cut is a perfect circle with no dents.



CAPTION 4. A CLOSE-UP OF THE CUT COPPER PIPE

### Installing a fitting on a copper supply line

1. Clean the copper pipe with the emery cloth.



CAPTION 5. THE INSTRUCTOR CLEANS THE COPPER PIPE WITH AN EMERY CLOTH.

2. Use the flux and brush it around the pipe.



CAPTION 6. FLUX IS BRUSHED ONTO THE END OF THE PIPE WHERE THE FITTING WILL BE INSTALLED

3. Place the fitting on the end of the pipe, making sure it is snug on the pipe. The fitting type installed is an adapter fitting, which will transition the copper supply line to a PEX supply line.



CAPTION 7. THE FITTING IS PLACED ON THE PIPE.

- Using a torch, heat the pipe gently. Start applying the solder.



CAPTION 8. THE INSTRUCTOR HEATS THE PIPE WITH THE AUTO TORCH.

- Turn off the torch. Work the solder around the joint and let the pipe cool off.



CAPTION 9. SOLDER IS APPLIED ON THE JOINT.

## PEX supply line

### Materials

These are the materials used in the video for the segment of installing fittings on PEX supply line.



CAPTION 10. A PHOTO OF THE MATERIALS USED IN THE VIDEO FOR INSTALLING A FITTING ON A PEX SUPPLY LINE. EACH ITEM HAS A CORRESPONDING ALPHABET LABEL.

- a. Sample PEX supply lines
- b. PEX pinch rings
- c. Female and male adapters
- d. 90-degree elbow and brass fittings (half-inch)
- e. PEX pipe cutter
- f. Ratchet/pinch tool

## Cutting PEX

Cutting PEX is an easier process compared to cutting a copper pipe. Using the PEX pipe cutter, place the pipe underneath the cutter blade and cut the pipe.



CAPTION 11. THE INSTRUCTOR DEMONSTRATES HOW TO CUT A PEX PIPE USING THE PEX PIPE CUTTER.

## Installing fittings on PEX

This demonstrates how to transition a copper pipe to a PEX supply line.

1. With an adapter soldered to a copper line, we can transition from copper to PEX.



CAPTION 12. THE INSTRUCTOR SHOWS THE TWO DIFFERENT SUPPLY LINES THAT WILL BE USED FOR THE DEMONSTRATION

2. Place the pinch ring around the PEX pipe.



CAPTION 13. THE PINCH RING IS PLACED AROUND THE PEX PIPE

3. Slide the pipe down onto the fitting. Place the ring an eighth ( $1/8$ ) of an inch from the end of the PEX pipe. This allows the ring to set on the ridges of the fitting, sealing the pipe up.



CAPTION 14. THE PINCH RING IS PLACED AN EIGHTH OF AN INCH AWAY FROM THE END OF THE PEX PIPE.



4. Use the ratchet tool and bite on the fitting while maintaining the eighth (1/8) of an inch space. There's a small part of the pinch rings that the ratchet tool can clamp on.



CAPTION 15. THE PINCH RING IS TIGHTENED AROUND THE PIPE USING A RATCHET TOOL.

5. Squeeze and pinch the ring around the pipe completely.



CAPTION 16. THE INSTRUCTOR TIGHTENS THE PINCH RING AROUND THE PEX PIPE.

6. Release the ratchet tool. The supply line is now transitioned from copper to PEX.



CAPTION 17. THE INSTRUCTOR HOLDS THE FINISHED PRODUCT: A SUPPLY LINE TRANSITIONING FROM COPPER TO PEX.

## Galvanized Pipe

### Installing a fitting on a galvanized pipe

1. Before attempting to put any fitting on the galvanized pipe, wrap a strip of Teflon tape first (or pipe dough) around the pipe threads. Wrap the strip according to the direction of how the fitting will be threaded on the pipe (clockwise or counter-clockwise direction).



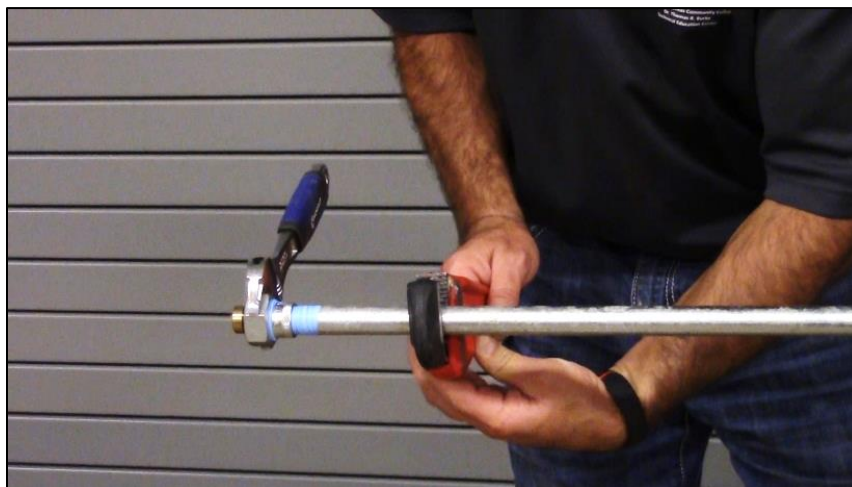
CAPTION 18. TEFLON TAPE IS WRAPPED AROUND THE THREADS OF THE GALVANIZED PIPE.

2. Start threading the fitting on the pipe. Hand-tighten.



CAPTION 19. A CLOSE-UP OF THE HAND-TIGHTENED FITTING AROUND THE TEFLON-WRAPPED GALVANIZED PIPE.

3. If you're not using a vise, put a pipe wrench around the galvanized pipe. Clasp it around the pipe tightly to ensure that the pipe doesn't turn while you tighten the fitting.



CAPTION 20. THE INSTRUCTOR USES A PIPE WRENCH AND CLAMPS IT AROUND THE PIPE.

4. With a crescent wrench, start threading the fitting on until it is tight on the pipe. The pipe wrench should stop the pipe from spinning as you work the crescent wrench on the fitting.



CAPTION 21. THE FITTING IS TIGHTENED USING A CRESCENT WRENCH.

## Looking for other learning materials?

The [Residential Plumbing and Repair iTunes U course](#) has videos and other learning materials for you to view. You can [download iTunes for free](#) to view the course and course materials. Closed-captioned videos are available at [T4E's YouTube page](#).

## Disclaimer and License information

This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.



Unless otherwise noted, this work is licensed under the [Creative Commons Attribution 4.0 International License](#). To view a copy of this license, go to <http://creativecommons.org/licenses/by/4.0/> on your web browser.

