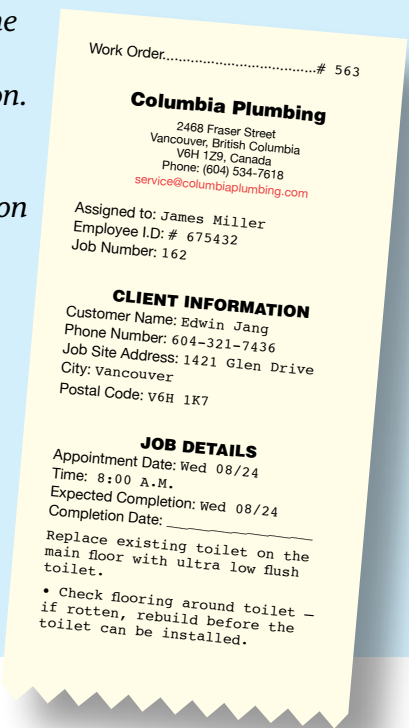


A day in the life of a plumber: James' story

Reviewing the job

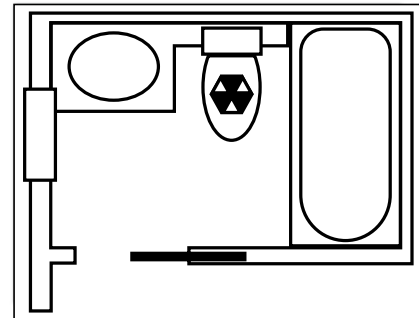
James is a plumber who works for a private company that specializes in home plumbing. His manager tells him that his next job is to install a new toilet for a customer. While the manager gives him detailed instructions, James writes a few notes on the work order (writing, oral communication).

Tomorrow morning you will be replacing an old large flush toilet with an ultra low flush for a customer, Edwin Jang. It is an old house, so don't forget to inspect the floor where the toilet was. If the floor has rotted, it will have to be rebuilt before the toilet can be installed. Depending on how bad the damage is, the rebuilding may involve the floor, the subfloor and even the joists. Inspect the flange and if it is damaged, replace it and replace the T-bolts. Also, before you leave to do the job tomorrow morning, you might want to research some information about different types of toilets in case the customer wants more information. There is a toilet replacement rebate application form and you should explain how to apply. It will save the customer some money.



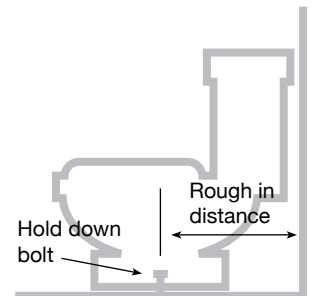
Setting up the job

After picking up the tools and supplies he needs from the warehouse and loading up his van, James checks his map and heads out to the customer's house. When he gets there, James discusses the toilet installation with the customer. He explains that since the new toilet is a little smaller than the old one, there may be some spacing adjustments to make between the wall and the new toilet tank. He says that he will present a few options on how to do this after he checks the rough-in distance (oral communication, numeracy).



Discussing options

James measures from the wall to the centre of the hold-down bolts and discovers that the distance is 14 inches. The new toilet requires only 12 inches (numeracy).



He chats with the customer about this situation and about what the options are to solve it. Some options will be more expensive than others (oral communication).

The first and probably most expensive option is to re-work the existing pipes to make a 12-inch rough-in. A second option is to replace the existing closet ring with an offset closet ring. The third and least expensive option is to place a spacer of some sort (like a wood block) between the tank and the wall. James explains that the spacer does not need to be large or visible, but that there will be a gap between the tank and the wall (thinking skills - decision making).

The customer is not happy with the gap option and decides to go with option two, using an offset closet ring; James agrees.

Preparing for the new fixture

James starts by shutting off the water supply to the toilet tank and removing all the water from the tank and bowl. He then removes the hold-down bolts so he can remove the tank from the wall and the bowl from the floor, to inspect the uncovered drain in the floor.

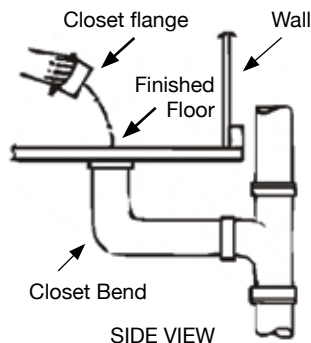


An offset closet ring allows the opening of pipe to be altered and alignment with the pipe already in place.

James also inspects the tile and subfloor where the toilet was; he finds the floor in great shape. However, he will have to make a wood block filler to fit the new offset closet ring. The cut-out of the floor and the wood block filler has complicated angles because the back corners of the new toilet will not cover a square cut-out. James cuts a $\frac{3}{4}$ -inch-thick piece of treated lumber to fit in the tile cut-out and drills in a $4\frac{1}{2}$ -inch hole in the wood block filler to connect the flange to the pipe (numeracy, thinking skills – problem solving).

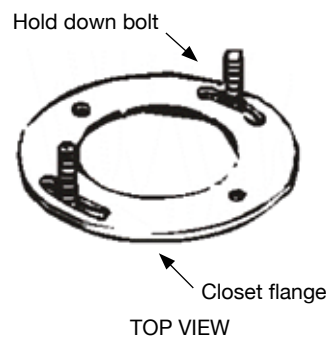
Securing the flange

James applies an adhesive to the drainpipe and the fitting, then lifts the drainpipe and fixes it in place with a temporary support. He then joins the drainpipe and the fitting with PVC cement, removes the pipe support and uses deck screws to secure the flange to the floor. He uses caulking to fill the gaps between the wood block filler and the tile floor to minimize water damage if the toilet ever overflows.



Once the flange is in place, the rest of the toilet installation is easy.

James installs a new sealer ring on the opening of the water outlet, on the bottom of the new bowl; he also applies an even layer of setting compound around the edge of the bowl, at the base (about 2 inches



thick) (numeracy). He turns the bowl right side up and places it down over the flange, guiding the bolts into place. James then levels the bowl and secures the toilet to the flange. Finally, he reconnects the water-supply inlet pipe and makes sure the ballcock assembly is properly attached. He turns the water back on and tests the operation of the toilet.

James finishes the job by reviewing the work he did with the customer (oral communication). He also reminds the customer about filling in the rebate application to get a refund for part of the cost.

Do you have the Essential Skills to be a Plumber?

Complete the following questions to see how your skills compare to those of a journey person in plumbing. (Answers on page 4.)

1. Internet research

Residential plumbers have to be up to date with the latest products to be able to give their customers current information. Do some research on the Internet to find out more about ultra-low-flush toilets so you can answer the following questions:

- A customer would like to replace a 13-litre toilet with an ultra-low-flush toilet.
 - Which search words should you use to find this information?
 - How much water does an ultra-low-flush toilet use?
- Find out if there is a municipal rebate available for a toilet replacement in the community where you live. Write down the steps you took to find this information.

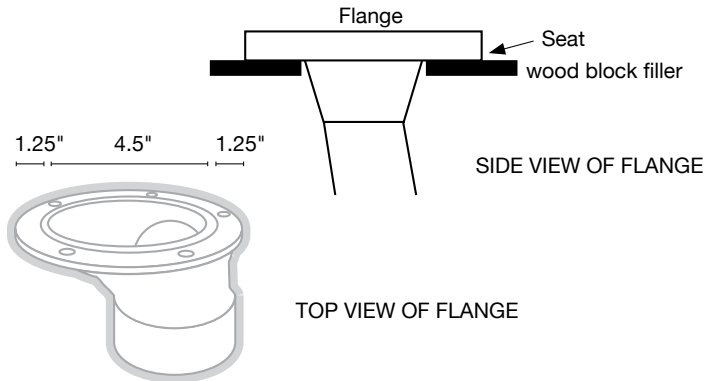
2. Calculating distances

The odometer in the plumber's service truck records travel to and from service calls during the day. The plumber can charge 53 cents per kilometre. Calculate the kilometres and the charge if the odometer has the following readings:

Start of shift:	82781.6 km
End of shift:	82817.9 km

3. Designing a wood block filler

A plumber drills a 4½-inch hole into a square wood block filler to connect the flange to the drainpipe. If the seat of the flange is 1¼ inches wide, what is the minimum width of the wood block filler?



4. Applying caulking

After applying caulking to the wood block filler and to the tile floor, a plumber spends one hour to complete the toilet assembly. He reviews the directions on the caulking and takes note of the following key points:

- Be sure the area is clean and dry before beginning caulking.
- Cut the tip of the caulking gun at a 45° angle.
- To release the caulk, squeeze the trigger of the gun and slowly pull it away from the bead.
- Allow the caulking to dry for a minimum of two hours.

Based on this information, how much longer must the plumber wait before turning on the water to fill the tank and perform a flush test for leaks?

1. Internet research (computer use, thinking skills-finding information)
 - a. i. ultra-low-flush toilets
 - ii. The old standard size of a toilet is 13 litres (or 7 gallons); new ultra-low-flush toilets use as little as 3 litres (or .8 gallons) of water.
 - b. Answers will vary. You can enter search words such as "toilet rebate program" along with the name of the city in which you live.
2. Calculating distances (numeracy)

82817.9km - 82781.6km = 36.3km
36.3km x \$0.53 = \$19.24 for travel charges
3. Designing a wood block filler (numeracy, thinking skills - problem solving)

1¼" + 4½" + 1¼" = 7" is the minimum width of the wood block filler
4. Applying caulking (document use)

2 hours for total drying - 1 hour to complete the assembly = 1 hour more waiting time

ANSWERS

For more information on Essential Skills and related resources, visit

hrsdc.gc.ca/essentialskills

For more information on the Interprovincial Standards Red Seal Program, visit

www.red-seal.ca

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