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## April, 2011

# Maintenance Reminder Newsletter

Reminders this month are:

1. Changing your furnace filter.
2. Operating your T-P valve on your water heater.
3. T-P Valve Drain
4. Cleaning Your Air Conditioner.

My purpose is to provide timely information to help you maintain your house. Most of it is maintenance or preventive maintenance. Simple things that you can and should do around the house to better maintain your property. Although many of these things are simple to do, we often just need a reminder to do them. And that's what this newsletter is all about.

Some of you are first time home buyers and are not familiar with all of the systems and requirements of the house and its components. I'll try to explain why we want to provide these maintenance services to our homes, and the possible consequences if we don't.

Please feel free to pass on your comments regarding the inspection and this newsletter. Your feedback will help me to improve my services to you and my future clients.

Steve Bauer

**Taking care of your house makes sense,  
"Because it's where you live"**

Most of my business comes from referrals. I would appreciate your sharing my name with anyone you know that might also be buying a new house. Feedback to your Realtor about your inspection, report, and this newsletter will be appreciated.

## April, 2011

If you're going to follow my recommendation on the pleated media filter for your HVAC system, now is the time to change your filter. If you haven't moved into your house yet, you should change your filter as soon as you move in and call it the April 1 filter. It's important to keep with the scheduled dates, both for ease of remembering when to replace the filter and to get approximately the same benefit from each filter.

We recommend pleated filters. Pleated filters should be changed every 3 months to maintain efficiency in the HVAC unit.

I recommend changing them on Jan.1, April 1, July 1, and Oct. 1. Each filter will then serve half of a cooling or heating season. I write the dates on the filters to help me keep track of where I am on this very important item.

I RECOMMEND A CHEAP PLEATED FILTER.  
It should be about \$5.00 or less



I recommend the pleated filter over the fiberglass filter for several reasons.

- They are a better filter.
- For the size that fits into your furnace, they offer much more filtering surface area.
- They will last up to 3 months, so you only have to change them 4 times a year.
- If you only have to change them 4 times a year, you are more likely to do so.
- The cheaper fiberglass filters need to be changed every month, and they do not collect as much of the fine dirt in the air return system..
- The purpose of the filter is to keep the furnace and air conditioner clean.
- Taking care of your filter is the best money you can spend on your house.

Inexpensive (about \$5.00 each) pleated filters do an adequate job. Using the more expensive pleated filters (\$12.00 to \$16.00 each) will do an even better job, and will improve the quality of the air coming out of your registers.

**“Regardless of how much you spend on the filters, changing them regularly as recommended will represent the best money you can spend on your house.”**

The primary purpose of the filter is to keep the furnace and air conditioner clean. Dirt bypassing the filter can accumulate on the blower, causing it to become unbalanced and wear out bearings on the blower. Dirt accumulating on the heat exchanger can cause irregular heating and cooling of the metal, causing cracks in the heat exchanger. The biggest problem with poor filtration is that the dirt can accumulate on the bottom of the evaporator coils in the air conditioner, and restrict air flow through the coils. You might remember from the inspection report that we want the cooling differential across the coils to be between 15° and 21°. If the temperature difference is more than 21°, it's usually because of restricted air flow. The air passes through the coils slower because they are dirty, therefore the air is within the coils longer, and the air gets colder.

Although the air can get very cold ( I've measured air temperature differentials as much as 39° and temperatures as low as 33° ), there is not enough volume of this cold air to cool your house. What happens, then, is that the A/C runs all the time wearing the equipment out, running up a high electric bill, and still doesn't cool the house.

I've been told by HVAC people that the major cause of A/C failure is poor filter maintenance.

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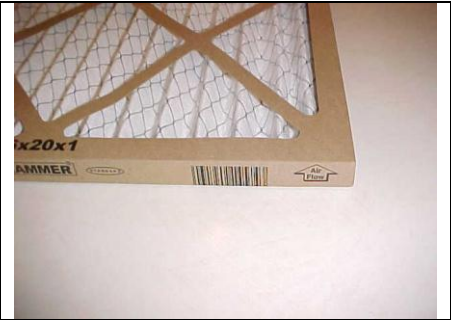
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I buy at least 4 filters at a time and write the dates on the top of each filter as a reminder of when to change them.



This is a top view of the pleated filter. The air goes into this side.



This is the bottom view of the filter. Note the arrow indicating the direction of the air flow.

Also note the cardboard and metal mesh on the back. This is reinforcing to strengthen the filter as it is sucked down by the blower.



This is the way that the filter sets in most of the HVAC systems in Douglas County. The metal tray holds the bottom edge of the filter and it leans across the duct, covering the entire duct cross section. The air flow is down on this type of set-up.



Note that the arrow points down and that the wire mesh is not seen.

**If this seems too basic, let me tell you that probably 40% of the filters that I inspect are installed backwards.**

Don't let it be yours.



Here are two filters at changing time. The one on the left was in for 3 months. The other is new. Actually, the filter on the left was doing a great job. As they get dirty, they filter better, up to a point. But I've seen filters so dirty that no air passes through them and they get sucked into the blower.

## April, 2011

### T-P Valve

The Temperature-Pressure Relief valve on your water heater is one of the most important safety devices in your home. It needs to work, and you need to know that it is working. The manufacturers of the T-P Valves state under a WARNING label that “the valve lever MUST be operated AT LEAST ONCE A YEAR by the water heater owner...” As I told you at the inspection, I am going to remind you to test the T-P valve 4 times a year. I am reminding you NOW that you should test the T-P valve on your water heater when you go down to the furnace and change the filter.

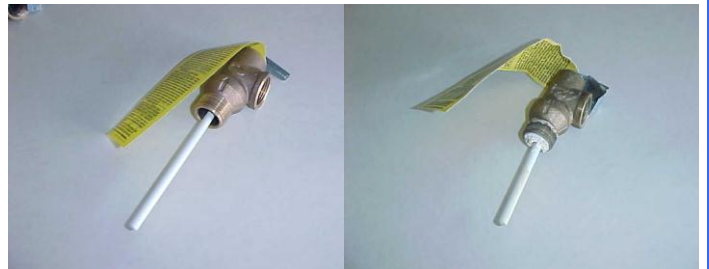
This shows the T-P valve installed in the water heater. Some are on the side; some are on the top.



The purpose of the T-P valve (Temperature-Pressure Relief Valve) is to relieve excess pressure from the Water heater in case it builds up too much temperature or pressure in the tank. If the gas valve or thermostat on the Water heater malfunctions and the water gets too hot, this valve should automatically open and relieve the pressure in the tank. If the T-P valve fails to operate as designed, AND the water heater overheats, the Water heater tank could explode, as a bomb, and destroy your house.

The T-P valve is less than \$10.00 and looks like this first photo when new.

After they've been in the water heater for several years they can look like the valve in the second photo. Deposits from the water can build up in the valve and significantly affect its operation.



Testing the T-P valve involves lifting the lever to allow water to flow out of the valve and into the drain pipe. I usually just give it 2 quick lifts to get a little water to come out and observe the flow that comes out. It has the full water pressure in the house, so should come out with a robust flow. My 2 quick lifts release less than a ½ cup of water. Draining more is not a problem as long as you're not making a mess on the floor.



Testing the T-P valve 4 times a year not only tests the valve to be sure it is working, but it also flushes out the valve 4 times a year, reducing the buildup in the valve and allowing it to operate as a properly functioning safety device for a much longer time. I don't know, but suspect that the T-P valve could last the life of the water heater if tested this often from when it is new.

Sometimes when I test a T-P Valve, I cannot even move the lever. I test so many that I have a good feel as to how much force is required to release the water, and when I exceed that force and the lever still doesn't trip, I stop and recommend that the valve be replaced.



There are also many T-P valves that I can open the trip lever completely, and no water comes out at all. In this case also, the opening in the valve is clogged and the valve needs to be replaced.



If I recommended that your T-P valve be replaced in the inspection report, be sure that it was replaced before you test it. If you force it open with more force that would normally be required by the internal pressure, you might not be able to seal the valve after you test it. If it continues to drip slightly after you test it, you might want to lightly tap the end of the valve with a hammer to try to improve the seat.

If it continues to drip, you should replace it.



Don't take the chance.

## April, 2011

### T-P Valve Drains

The Temperature-Pressure Relief Valve (T-P Valve) must have a drain of a suitable material that will withstand the temperature of the hot water (not PVC).



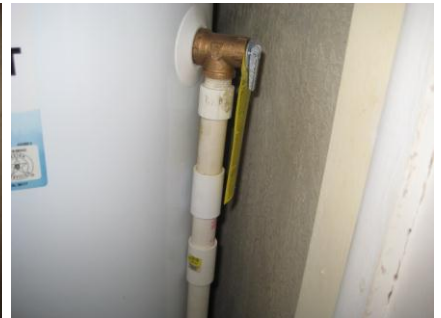
It must be as short as possible and be of the same size as the T-P valve (3/4"). It must pitch downward and terminate at least 6" above a drain and where the discharge is plainly visible.



Copper is best for this drain.



Galvanized is OK.



PVC is not OK

If the T-P drain is just close to the floor drain, we recommend installing a ¾" copper elbow to direct the discharge water toward the drain.



If the drain discharge is not directly over or close to the floor drain, or if there is no drain near the Water heater....



we recommend that the drain pipe be cut off about 6" above the floor....

and a plastic cup placed under the T-P drain, as shown.

If you test this every 3 months as recommended, you'll put about ½ cup of water in the cup, which will evaporate by the time you test it again 3 months later



## April, 2011

### Air Conditioner

This is also a good time to clean your air conditioner condenser coils. The condenser is the outside unit.

You might want to do this several times a summer, but at least do it now at the start of the air conditioning season.

It's just a matter of going out to your condenser unit and hosing it off with a garden hose. (when the air conditioner is not running) The first time you do it might take several minutes, but if you do it several times a year, it shouldn't take more than a minute each time.



Don't let your coils get as dirty as some of these.

This part of the air conditioner cools the Freon by sucking air across the coils and blowing the warmer air out of the top.

If the air flow is restricted through the coils, it is not going to cool the Freon as efficiently as if the coils were clean.



It's a matter of economics AND comfort.

