

THE

US

Boiler Report



Published by U.S. Boiler Company
Manufacturer of Burnham® Brand Products

January, 2015 • Vol 3, Issue 1

Our Kind of Town...



Yes indeed, it's that time of year again... time for AHR EXPO! If you have never been to one, it's really something to behold. The largest trade show venues in the country are chock full of the latest in HVAC and industry-related exhibits, from the largest industrial cooling towers, to the smallest washers and fittings, it's all there under one REALLY BIG roof.



This year, the show is taking residence at McCormick Place in Chicago, from January 26-28. If you are either in the

area already, or perhaps contemplating a trip to the Windy City, please be sure to stop by the U.S. Boiler booth (#4466). Whether you are a long-standing customer, or perhaps someone who is casually checking our current product offerings, we are looking forward to meeting with people just like you!

What will you find at our booth? Well, to start at the top of the list, you will see both the Alpine and the new K2 condensing boilers. If you haven't gotten to try the new K2 yet, here's a great opportunity to get up close and under the hood! In addition to these displays, we will be showing a few new items that will enhance the operation and system efficiency that of these boilers are capable of offering. You also might

get a glimpse at a few other things that are a little further down the road and get to weigh in on your perspective in the development process of these enhancements.

We will also be representing our current lineup of cast iron gas boilers with the ESC and Series 3 water boilers, and the Independence, a gas-fired cast iron steam boiler.

Since a big trade show like this also means a lot of walking, be sure to stop by for a rest. Our booth will feature a large central conversational space with tables and chairs. Don't feel much like talking? That's OK too...just stop by for a rest. In any case, be our guest! We look forward to meeting with you in Chicago!

What's Inside...

<i>Outdoor Reset Bliss</i>	2
<i>Ellen Rohr's Bare Bones BizTips</i>	3
<i>Beck Tips: O2 Adjustments</i>	4

<i>Feature: Doing it Differently</i>	5-6
<i>Young People in the Trades</i>	7
<i>Giving Booties the Boot!</i>	8



Outdoor Reset Bliss

by Andy Mickleson

"Ohh, Heaven let your light shine down!" When they wrote their 1994 hit song, "Shine," rock band Collective Soul messed up the next line. The lyrics should continue with, *"As, as long as it's not on my outdoor reset sensor!"*

I've been on a few too many jobs where boiler outdoor reset sensors are installed incorrectly. Sometimes, you can tell there was absolutely no effort made by the installer to do it properly. Other times, someone made an attempt, but only got it half right. At the end of the day, if the sensor isn't accurately reading true outdoor ambient temperature regardless of weather conditions or time of day, it's *wrong*.

That's what happened at the last home I visited for a boiler maintenance. The installer made a little sun shade out of aluminum flashing to cover his sensor on the south side of the building. The sun's radiant energy beating down on the metal heated the air directly underneath it, making the sensor read too warm.

In order to correctly mount your ODR sensor, start by putting the sensor on the north side of the building, out of the sun. Under a deck is best, if at all possible.

Next, be sure not to put a sensor near any heat source; a drier, fireplace or boiler vent. You want to stay well away from these, preferably 12 or 15 feet if at all possible. Also, don't hang it directly under any soffit. Heat can escape from the soffit via attic vents, again throwing off your temperature reading.

While it doesn't matter if the sensor gets wet, you don't want it covered in snow. Here in Missoula, our design snowload is 12 inches. In reality, we often get more than that, so I'm

typically hanging sensors at least 18 to 24 inches off the ground.

Going Wireless

Getting the ODR sensor where it needs to be is gravy when you're dealing with new construction. But that's not always the case for most of us. I don't know about you, but when I'm called to do a boiler replacement, there's a decent chance the boiler room will be in a finished basement, against the south wall.

If there's no drop ceiling tiles to lift, no wrap-around deck, and no porch roof to run it through, you're left with a challenge. Because of the increased cost to the homeowner, I don't use a wireless sensor unless I've exhausted all my other options. At that point, I'll use an aftermarket, universal wireless sensor. Some boiler manufacturers are currently working on their own wireless ODR sensors, but for the moment, we're limited to aftermarket products.

Now, be careful of the word "universal". Not all boilers interface with all wireless sensors. A boiler will only work with a thermistor which creates the correct resistance at a known temperature. In the case of a Burnham boiler, you need 10k ohm at 77°F. In comparison, I believe an HTP uses a 12k ohm at 68°F sensor. So keep that in mind.

The downside to aftermarket wireless sensors is that they're pricey. At roughly \$200 a pop, I'm not buying it for every single job just to make life easier. But on jobs where I'd spend five hours wrapping wire around the house only to have some of it concealed, it's well worth the money.

With a wireless setup, replace the batteries any time you're at the property for a service call. If the batteries die, it's

not the end of the world, but the boiler will fire as if you're at outdoor design temperature.

If you're installing an outdoor reset sensor, you're obviously installing a premium boiler and your customer has made a conscious decision to invest in energy efficiency and comfort. Fifteen extra minutes spent on installing the ODR sensor correctly can mean the difference between a boiler that's delivering optimal performance and one that's just heating the house.

Andy Mickelson owns Mickelson Plumbing & Heating in Missoula, Montana. Though they do it all, the company's main focus is commercial and residential hydronic heat. Andy and his beautiful wife, Sheryl, have a daughter, son, and a yard full of chickens.

Editor's Note:

U.S. Boiler Company is currently developing a wireless outdoor reset sensor for use with the Sage and IQ boiler control systems. Additional information about this new and exciting offering will be available at our booth (4466) at the AHR show in Chicago. If you are unable to make the show, stay tuned for further developments and announcements!





Bare Bones BizTips

By *Ellen Rohr*

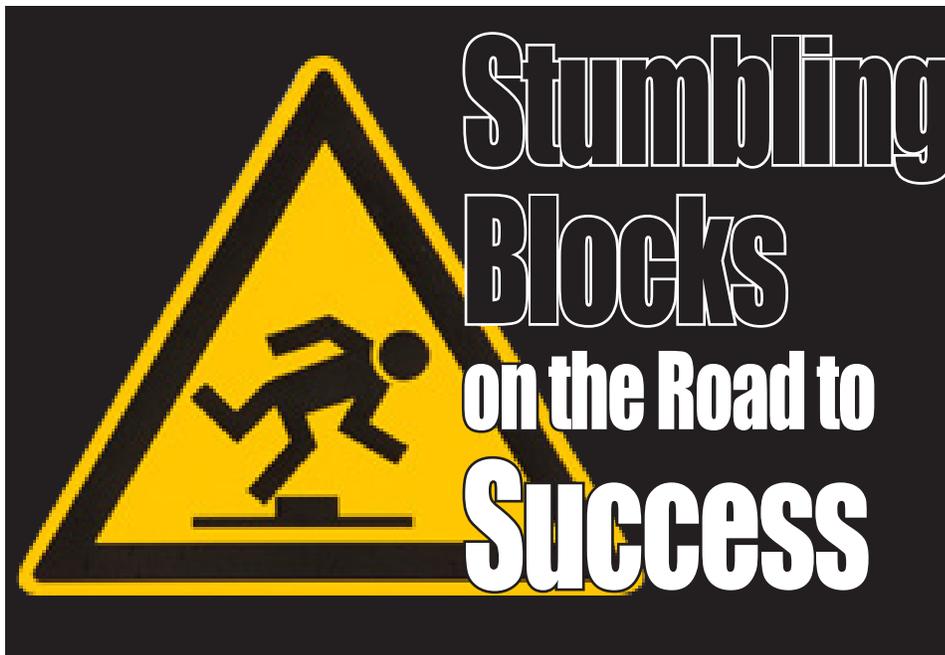
In this country, in spite of its challenges, we have access to everything we need to be healthy, wealthy and wise. So...what's getting in the way? The stumbling blocks on the road to success are mostly of our own creation. I've listed a few common ones below. Recognize any of them? As the new year dawns, let's be willing to gently move past these blocks and create our best year yet.

Wishing and wanting

Do you have a written list of goals? When you write down what you want to be, do and have...you hurdle a big stumbling block. Mark Victor Hansen – the Chicken Soup for the Soul author – suggests you write a list of 101 goals...from mild to wild. Why not? Those who write down their goals are more likely to achieve them. Get going and get specific. Break the goals into monthly, weekly, daily to dos. You know this. Quit *wanting* things to be different. Impose the discipline it requires to make it different.

Brainy guys get paralyzed

I love Bill Rosenberg, founder of Dunkin' Donuts, and Ray Kroc of McDonald's. These guys...no offense fellows...were not geniuses. Have you read their autobiographies? They pressed on towards their dreams without having every single move laid out. The smarter the person the more likely he or she is to set up a stumbling block. The smart set can imagine so many ways that things can go wrong. They see every possible future scenario. They can see all the imperfections in



a plan. So, they end up doing nothing. It's called "Paralysis by Analysis." Do you suffer from it? If so, dumb it down a little. Take action in light of uncertainty.

Stating, and restating, and stating again...the problem. (aka whining.)

Picture your association meeting. The biggest whiner will find a few other losers and start a pity party. Woe is me, woe is you. Refuse to participate in these conversations. No good comes of them. Find the most successful members of your group. Ask good questions... and listen. How did they overcome the stumbling blocks? What got them unstuck?

Sloppy shop

The foundation of a focused, organized, successful business is cleanliness. Throw out what you don't need or could find elsewhere. Consider your office prime real estate...what needs to be close to you? Put projects in binders or file cabinets. Be selective about what goes up on the walls. Use frames and cork boards...no tape or pins directly in the sheetrock. Dust, mop and paint. Create a sanctuary in which you can create your

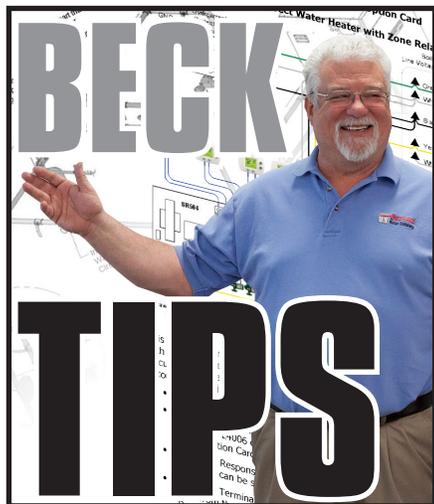
finest work. No matter how tough times get, you can always clean it up. It feels great and reduces overwhelm.

Hunt for the Silver Bullet

There is no piece of information that is going to make everything all better. You know plenty. You know enough to be successful. Act on what you know. There is no item of technology that will make all the difference. There is no single marketing piece that will solve all your problems. Paul Revere rounded up the revolutionaries by riding on horseback from town to town, shouting, "The British are coming!" Get moving.

We hold ourselves back. We can create the stumbling blocks...or hurdle them. Let this be the year we break free.

A business plan can get you all on the same page! Less stress and drama, MORE MONEY! Download Ellen's free Biz Planning Video Series at: www.BareBonesBiz.com You can also find "ellenrohr" on Facebook, Twitter and Google+.



By Ron Beck,
U.S. Boiler Company

During job site visits, phone conversations and seminars I get asked, “When do you have to perform a combustion analysis?”

The answer is simple; after the installation is completed, gas valve or inducer change, gas pressure regulator change, after annual service or converting fuels.

When you are checking or adjusting the O₂ you need to use a combustion analyzer. Even though the range for the Alpine O₂ setting for natural and LP gas is 3.5% - 6.5%, the optimum setting is 5.5% to 5.6%. The K2 is more specific. See the K2 Operations manual for O₂ specifications in high fire.

When the combustion test determines that the gas valve needs to be adjusted, don't panic. This is easy to accomplish. Follow these steps:

1. First, make sure the boiler has a demand for heat or hot water.
2. Verify the gas pressure is within the range on the boiler label.
3. You must Log into the control. Press “Adjust”, “Adjust”, “Login”
4. Touch the Zeroes in the center of the display
5. Touch 86, then the “enter” arrow

Alpine & K2 Boiler O₂ Adjustment

6. Next touch the “Save” then “Adjust” buttons
7. The next screen will display six boxes. Touch the bottom left titled “Manual Control” and choose “High” This will force the boiler into high fire for about 15 minutes.
8. When the combustion analyzer settles on an O₂ reading, check that it's within the range mentioned above. If the O₂ requires adjustment, proceed to step 9.
9. The adjustment is made with the throttling screw on the gas valve. The throttling screw is a very small brass screw just to the right of the electrical connector on the gas valve. See Fig 1.
10. If the O₂ needs to be lowered, turn the throttling screw counterclockwise (left) 1/8 to 1/4 turns at a time. If the O₂ needs to be raised turn the screw clockwise (right). Note; Left lowers O₂ and Right raises O₂.
11. When adjustments are made, do not adjust throttle screw again until the O₂ balances out.
12. When you reach the proper O₂, check the O₂ reading in low fire and verify the reading is within the proper range listed above. To set to “low fire” follow the procedure in Step 3 thru Step 7 choosing “Low” instead of “High”
13. Do not re-adjust while in low setting as it will change the High setting. If within range it is OK. The O₂ in High and Low fire are usually fairly close. If out of range, re-adjust in High and verify low is within range.
14. When you are satisfied with your

O₂ adjustment, you can open the “Manual Control” button and choose “Auto” or wait. The boiler will automatically go back to Auto in about 15 minutes of the last button press.

Even though it looks very involved, it's not. Converting from Natural Gas to LP requires no parts, just a throttle screw adjustment. This is usually about a 5–10 minute process. If you have any questions you can call our office for assistance.



Fig 1 – Alpine gas valve & Throttling screw

Ron Beck is Outside Technical Advisor and Manager of Training for U.S. Boiler Company, where he's been since 1998. Ron's 34 years of experience in the heating industry include climbing the ranks of a HVAC company, from apprentice to service manager. Ron can be reached at: RBeck@usboiler.net or (717) 877-9738

Doing it Differently!



Whether it's offering a 5/10 year warranty on all installations, providing 5-year guarantees on service work, or offering 24/7 flat rate pricing, the team at Home Climates takes pride in taking customer commitment to a higher level.

"If it ain't broke, don't fix it," goes the old adage.

There's plenty of vintage wisdom in that line, but it completely dismisses any possibility of *improvement*. It's improvement that the founders of Home Climates Heating, Cooling and Geothermal looked to bring to their own mechanical company structure when they started the firm in early 2008.

The Elizabethtown, PA, company sets the bar high when it comes to customer communication and follow through.

"We do things a little differently here," said Nathan Shambaugh, president and one of four

co-owners. "We haven't re-invented the wheel. I'd say we're using a new tire tread pattern and maybe a better rubber compound. But based on customer feedback and return business, I'd say it has proven itself." The other three co-owners, Terry Amig, Justin Fisher and Jim VanHorn, all agree.

Selective product offering

Among the other things that set Home Climates apart is their five- or 10-year parts and labor warranty, depending on the type of installation. Hydronic, ductless, geothermal, it doesn't matter; the customer has the peace of mind knowing that any problem

that may arise in the next decade is of little concern.

"As a small business, that's a big promise to make," said Fisher, who joined the firm as an owner in 2014. "Out of necessity, we do our best to partner with manufacturers who make the same commitment. Burnham condensing boilers are covered by a five-year parts and labor warranty, upgradeable to 10, and Amana and ClimateMaster offer a similar warranty on some of their equipment."

But their commitment to customer satisfaction goes beyond new installs. If a Home Climates technician is called in to fix an ailing system, their work is covered by a five-year guarantee.

If that's still not enough, Home Climates has what they call an "After Hours Advantage". On weekdays, weekends, nights and holidays, the same flat service rate applies regardless of the emergency. There's no buy in, it's simply a perk of hiring the company.

"Flat-rate labor pricing is obviously well received by everyone, but landlords especially have expressed that it's a huge advantage," said Fisher. "Where a homeowner might wait a few hours in order to call during regular business hours, a rental property owner with numerous tenants doesn't have that luxury."

— Continues, see "Different", page 6

–“Central”, continued

Rental properties abound within the 20-mile radius of the shop. Home Climates has retrofit solutions as well as service programs that are well suited for rental and multi-family properties.

Four boilers, one house

Just minutes from the shop is an old, 4,800 square-foot house that – like many around it – was segmented into four rental units years ago. A single 1960s oil boiler served the entire building, and two zones left half the tenants without any control of the indoor temperature.

For years, the property owner had been eating the fuel oil cost because he couldn’t accurately bill tenants for their heating use. He wanted a way to fairly divide the cost among the units. Last heating season was enough to spur him to action.

In a total of 90 hours, Home Climates removed the old boiler, individually zoned the fin-tube radiation in the four apartments and installed four, 80 MBH Burnham K2 condensing boilers, each with its own gas meter outside.

“Jason Richards, at Hajoca, keeps us up to speed on all the new components fit to install,” said Shambaugh. “When he came to us with the K2, saying that it’s an easily-installed condensing boiler and priced competitively, we

automatically expected good things.”

Designed to be intuitive and simple, yet offering thermal efficiencies up to 94 percent, the stainless steel K2 is available in five sizes from 80 to 180 MBH.

Worth the effort

“Piping and setting up the boilers was the easiest part of the job,” said Technician Chris Green. “The K2 is really user-friendly.”



“The toughest part was splitting up the baseboard into smaller zones,” agreed Fisher, the company’s plumbing division leader. To determine which supply and return lines went together, we used an air compressor in the basement; one guy running the compressor and another checking the returns.” Running gas from the street wasn’t a problem, but from the meters to the house, the lines had to run under a porch.

It was worth the effort though, for many reasons. Having the ability to fire the apartments individually will cut the building’s carbon footprint significantly, especially considering that in shoulder seasons, when the south side of the building requires far less heat. Another advantage comes from the fact that if a component fails – say a circulator dies – only one rental unit will lose heat, as opposed to the whole building going cold.

“We service oil equipment, but 90 percent of our replacement work is done



Home Climates converted the heating system in this four-unit rental from a large single boiler to four individual K2s.

with condensing equipment,” said Shambaugh. “Most of our territory has access to natural gas, and, when installed correctly, high efficiency boilers are so flexible, as this job demonstrates.” Whether plumbing, heating or air conditioning, Home

Climates will present the owner with all their options, from band aids to full system replacements, according to Shambaugh. Then they’ll give a professional opinion based on the circumstance. In the end, it’s about providing what the customer wants.



Look for this logo to find unique features that set U.S. Boiler Company apart from the competition. It’s a quick, easy way to identify a product or service our competitors don’t have – like **The US Boiler Report!**

Young People in the Trades

Part 4 of 4

A Few Good Mentors *by Ron Poniatowski, Meenan Oil, Wantagh, NY*

One of the most daunting things about the lack of young people joining the trades today is that it may feel like there's nothing that we can personally do to change the situation. What can one person do about a huge national problem?

Over the past three months, we've looked at this problem from a few different angles.

This month, as the final installment of "Young People in the Trades", Ron Poniatowski – a seasoned technician from Long Island - weighs in on the single most important factor that influenced his career. His mentor is the main reason he's where he is today; staying busy and making a great wage with job security in Wantagh, NY. He says, being a mentor can make all the difference in the world. At 17 years old, I started in this trade working for a man named Brian Gude. That experience led me to the opinion that having a good mentor is the single most important factor in any young person's career.

At the time, Brian was 31, and owned B&C Heating, Inc. He taught me everything I know, and in a million years I couldn't have picked a better mentor. Picture a modern-day Thor, but stronger, with a razor sharp mind and amazing sense of

humor. Brian was the type of person that people naturally gravitated to. He was killed tragically in 2001, and I still think about him every day. He was without a doubt one of the best this industry has ever seen.

In lean times, Brian employed three guys. In times of plenty, we were 10 strong. We subcontracted for quite a few big oil and gas companies, and during my time there, I developed the skills that would put bread on my table and gas in my Challenger for the rest of my life.

Life lessons

To say I learned a lot during my 10 years working for Brian would be an understatement. I developed both life and technical skills on the job. Of the lessons learned while there, three rise to the top. They've impacted my career as well as my personal life.

First, Brian instilled the idea that there is no "good enough". "People pay good money for us to work in their home, and they're going to get our best effort every time," he'd say. There was never a situation that warranted giving less than 100 percent. When you worked for Brian, you did your best work or you didn't work at all.

Honestly, there's no shortage of tradesmen with Brian's mindset in that respect. Generally speaking, we're a pretty hard-working lot. But the second thing he imprinted upon us may be a little less prevalent. He'd tackle any job, regardless of the difficulty. He showed me that the impossible can be done, and done often, and done beautifully. He'd always say, "You never know when the next job will come along."

The third piece of wisdom I absorbed while on the job with Brian might be the most important, because it makes the first two that much easier. You simply need to have fun while you're working. Most of us will spend more than 100,000 hours on the job before retirement. That's a huge chunk of life, so you need to make the best of it. It comes as no surprise that Brian was a great person to be around on or off the job.

Trade and employee retention

I had zero hours of formal training when I started working for Brian. I learned in the trenches. After about a year-and-a-half, my partner and I were sent out on our first solo boiler install. It was trial-by-fire, but Brian always showed up to help us finish the job and ensure everything was correct.

He was very patient, letting us learn as slow or as fast as we needed. If we really screwed up, he'd joke about it in a good natured way while helping us fix the problem. Seeing that attitude in a superior makes you want to give everything you've got.

Some business owners, managers and supervisors treat employees like a number. That needs to change if you want to see employee retention rise. A little motivation and positive feedback goes a *long* way to making a worker feel appreciated. If everyone who starts out in this trade had a mentor like Brian, you'd see more young people staying in the trade, and staying with the same company after their apprenticeship is over.

But you don't need to be an owner or manager to be a mentor. If you work with an apprentice, do your best to take them under your wing. If you're honestly willing to help them succeed, your efforts won't be wasted. Think of your favorite hobby; you're probably interested in seeing it progress with the next generation. Why wouldn't you do the same for your industry?

Give Booties the Boot!

By Matt Woodcraft,
Life Flow Plumbing, Lititz, PA

A while back, I arrived at a home for a service call, and when I got to the door, Mrs. Jones handed me two plastic booties. I guess she'd had a previous bad experience, so I told her I brought my own, and proceeded to kick them on. Because she'd never seen my footwear solution before, she had a few questions, but ultimately, agreed that it was much better than her flimsy booties.

I stopped using the clear plastic pull-over booties almost three years ago. I was spending about 20 bucks just to keep a fresh pair on at all times. As you know, if you're in a concrete basement, you can easily go through three pairs on a service call.

I read about how some tradesmen were using Shoe-In overshoes in place of booties, and decided to give them a whirl. Imagine an oversized, foamy-rubber shoe that slides on and off over your work boots. The material is very similar what Crocs are made of, so they're light weight, slip resistant and won't mark floors. I don't think they're going to win any style awards, but hey, I'm a tradesman, not a runway model. At least for now.

What I like most about Shoe-Ins is that they're hands-free. Whether putting them on or taking them off, you don't need to put down your tools and bend over to mess with booties. That's a major plus if you're running back and forth to the truck. My first pair lasted me two years, until I left them at a new construction jobsite.



Typically, I use them as in-home shoes. I walk to and from the truck in my work boots, and slip the Shoe-Ins on at the door in front of the homeowner. On new construction jobs, where the yard can be freshly-graded, I'll walk through the mud with them on, and slip them off outside the house. At the end of the day, I just hose them off.

From what I understand, they come in four sizes, two styles, and a few colors. I have the closed-toe style. The open-toe version looks just like a giant flip-flip. The only downside I've noticed is that they're a bit cumbersome on a ladder until you adjust to wearing them. But

that said, they're not slippery on the rungs like wearing plastic booties.

You can get them at Workingperson.com, Amazon.com, Gemplers.com, or a number of other websites. With shipping included, you should have no trouble getting a pair for under \$40.

For me, that's two weeks' worth of plastic booties, so it's not a hard decision. I think, too, that when homeowners notice, it says that I take my job seriously. Mrs. Jones was impressed. Maybe she'll start selling overshoes instead of handing out booties.

The U.S. Boiler Report is a monthly publication produced by Delta C, LLC in conjunction with U.S. Boiler Company. For inquiries or additional information regarding article submissions, please contact:

Dan Vastyan (Delta C): 717-587-9595
Mike Hook (U.S. Boiler): 717-397-4701

Distributor Line: 866-659-3927
Tech Line: 866-684-1463



www.usboiler.net