The Monroe Igniter

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ENTER THE ERA OF THE EXPERIENCE ECONOMY

Matthew Schneider

It doesn't take a genius to see that the consumer landscape is changing. More changes have taken place in consumer purchasing over the past decade or two than in the history of retail sales. A Wisconsinite needs only look to the east while traveling through Kenosha and take a gander on the hundreds of thousands of square feet of Amazon Distribution Center staring at the freeway as a reminder of the rise of e-commerce. Pick up any financial/business newspaper or magazine and you will discover articles a plenty with regards to the decline of American retail giants.

The Business Insider had multiple articles this month with regards to the decline of shopping malls all across the U.S. Experts are estimating that nearly half of America's 1,200 shopping malls will be boarded up within the next 15 years. Clothing retail powerhouses such as The Gap, have just announced the closure of almost one quarter of the stores and J. Crew is laying off more than 10% of their corporate work force. Department store giants Sears and JCPenney have shuttered hundreds of stores nationwide. Yet, in the midst of all of this downward pressure, technology giants like Apple and high end retailers like Saks Fifth Avenue and Neiman Marcus are keeping these failing shopping malls afloat.

Economists across the country are asking the question, why are consumers turning their backs on the $50 jeans that they clamored for in 1990's and 2000's, yet flocking to the Apple Store to buy technology devices in the $250 - $2000 range. Have any of you been to an Apple Store? You need to contact them ahead of time, make an appointment to see an associate and give them a tremendous amount of information in order to secure your time slot. Why in the world would the Apple Store now be the new foundation of the American retail experience?

Many suggest it is for just that purpose – the experience. The experience of walking into the futuristic store, with the fancy technology, to have an Apple geek waiting for you to arrive, all the while having downloaded your personal preferences from the cloud. For that moment, you are not a casual shopper that is "just looking". You are a client of Apple. They are waiting for you with open arms and they are excited about entering into a business relationship with you that may stretch on for many years.

I know, because I am an "Apple Guy". The entire experience is emotional. There is an instantaneous, emotional attachment to this purchase and as many retail scientists are finding out, a consumer's pocket book and their heart are definitely connected.

Many of us might think that these consumer trends are merely for the traditional retail model and these phenomena's will never make the leap to the contractor sales models, but consumer trends are consumer trends and they cast themselves broadly across all buying sectors. Many of the most successful contractors in the country are experimenting and succeeding with improving the consumer experience. Whether it be the image that they present, the professionalism that they display or just providing customers with small, highly personal touches that will affect the customer positively, while eliciting an emotional response. It is imperative that as contractors and distributors we accept the changing landscape and engage our organizations to improve the customer experience in order to maintain our relevance in the marketplace.

The reality of our industry is that there are only a handful of manufacturers competing for a fixed market share. Many of these manufacturers are seeing traditional or neo-traditional retail channels as a far more controllable method of getting their products to market than the factory to distributor, distributor to contractor, contractor to consumer model. In fact, it is well documented that mega-manufacturers view contractors as a filter, rather than a conduit to the consumer.

It is time for us to step up our game and change the game forever. Monroe Equipment is here to help you convert your organization into a retail powerhouse. We have the knowledge and the resources to help. All we need is the desire on your part to make the commitment to empower your organization to be memorable, to increase the consumer experience to the level where the consumer would be crazy to not enter a long term, business partnership with your team.

MENOMONEE FALLS PARTS DEPARTMENT

Rich Taylor

Please pardon our dust! As some of you have noticed, we have been changing things around on our showroom floor in Menomonee Falls. Believe it or not, it's not just for "job security". We are moving like products together to make it easier on you when you come in to our counter and place orders.

We thank you for your business and look forward to serving you better!

PLAN REVIEW REQUIREMENTS

Ben Lane

One of the most common questions I receive on a regular basis is whether or not a plan review is required on a given project. As a general rule, I recommend getting in contact with the local inspector or AHJ before starting any project to be certain they don't have any unique rules or job requirements. Often times you will find that they are more than willing and able to assist you with this themselves, saving you time and the cost of going through a more formal plan submittal process with the State. With that being said, there are a few guidelines to follow that will help to establish where a plan review might be required.

A new HVAC equipment installation in a new construction, addition or remodeling project in a commercial building may require a commercial building plan review if it is to be used in any way for human comfort or ventilation purposes. The plan review requirement is dependent upon the total building volume, inclusive of any new addition, existing and remodeled areas. Buildings over 25,000 cubic feet are required to have a plan review and buildings over 50,000 cubic feet require a supervising professional to prepare the plans and supervise construction.

Below is a listing of building occupancy types that may be exempt from plan review depending on their size. Buildings exempt from plan review are still required to meet minimum code requirements and Boilers, Pressure Vessels and Mechanical Refrigeration equipment is still required to be registered.

HVAC equipment replacements in commercial buildings are exempt from plan review provided only the duct or pipe modifications necessary to accommodate the new equipment installation are made. Duct and pipe modifications exceeding this should be submitted to the state for review as an HVAC alteration plan. HVAC equipment replacements do not include the size or capacity changes being made to accommodate building alterations or additions. These size modifications should likewise be submitted as an HVAC alteration plan. Although a formal plan review may not be required, some local municipalities may require that HVAC equipment information be supplied as a part of the permitting process.

HVAC equipment replacements in which the new equipment being installed is substantially smaller in size than the existing equipment being replaced (new equipment being 15% lower in output capacity than existing) requires a state submittal. The submittal must include a plan review application form along with a letter complete with owner and project contact information; name and contact information of the contractor or designer responsible for the replacement; make, model and capacity of equipment being replaced; make, model and capacity of equipment being installed; heat loss and/or gain calculations substantiating the change in size. This submittal must be submitted by a supervising professional if the total building volume is 50,000 cubic feet or greater.

HVAC plan submittals are likewise required where heating only equipment is replaced with combination heating and cooling appliances or where cooling is added to systems that were previously heating only. Installation of stand-alone equipment such as fireplaces, commercial kitchen hoods and waste oil burners also require a submittal and the fees are based on the quantity of equipment being installed or the minimum required submittal fees.

SPS TABLE 361.30-1

Buildings Exempt from Plan Review Building Type or Occupancy	Building Description
Assembly Group A-2, A-3	Containing less than 25,000 cubic feet in volume
Business Group B	
Factory Group F	
Mercantile Group M	
Storage Group S	
Utility and Miscellaneous Group U	

GETTING TO KNOW YOU

Barb Beckett

Meet Monroe's newest Customer Service Specialist at the Oshkosh branch, Randy Schoonover, aka "Woody". I know what you're thinking, "why Woody?" Randy previously worked where there were *three* "Randy's". Each of the Randy's had to come up with a nickname for themselves and someone told him he looked like Woody Harrelson, so then he was nicknamed "Woody."

This is interesting because there are *three* Randy's at Monroe Equipment and all *three* Randy's last names starts with an "S". So if you call and need to talk to Randy Schoonover at the Oshkosh branch, please ask for Woody!

Woody is originally from Kansas. He moved to Wisconsin in 1987 to work for a friend who owned a construction company in Fond du Lac. He worked there for about 5 years until the business slowed. He then took what he thought was a temporary job at a HVAC distributor and stayed there for 27 years. Woody was looking for a change and is looking forward to the challenges at Monroe. So far it has been a smooth transition.

Woody lives in Fond du Lac with his wife and two daughters Ella (5) and Emelia (18 months.) He enjoys doing things with his family, biking, hiking, and playing golf and basketball.

Randy "Woody" Schoonover

Even though we were sad to see Ron Wilson leave, we welcome Woody and what he will bring to the Oshkosh branch!

A/C METERING DEVICES

Ken Jung

In all modern day refrigeration and air conditioning units, there are two components that separate or divide the refrigerant flow and operating pressures into the high and low pressure sides of the system. The first component is the compressor. The compressor takes or draws in low pressure suction gas and mechanically compresses this refrigerant gas into a high pressure, high temperature gas on the outlet side. Therefore, both high and low pressures exist within the compressor and makes it one of the two components that divide the sealed refrigeration/air conditioning system.

The second item dividing the high and low pressure sides of the system is the metering device. Located between the end of the liquid line and inlet to the evaporator (indoor) coil, this non-electrical, but mechanical device is greatly misunderstood.

In the air conditioning industry this metering device is typically one of three types;

1. Fixed bore capillary tube (only common on very small fractional horse power compressor and single circuit coil systems)
2. Metering piston (piston, accu-rator, flow-rator - depending on manufacturer)
3. Thermostatic expansion valve (TXV, TEV or TX).

The metering piston functions in the same manner as a capillary tube in that a specific diameter hole will meter the refrigerant into the evaporator coil. This small opening will cause the flow of refrigerant to be restricted - building pressure on the high side of the system and have a significant reduction in pressure on the outlet side of the metering device. This reduction in pressure will correlate with a drop in the temperature of the refrigerant entering the evaporator coil.

Since the temperature of the refrigerant flowing into the evaporator is colder than the air being blown across the coil, the liquid refrigerant boils off and returns back to a gaseous state as it absorbs heat. The low pressure, low temperature suction gas is now drawn back to the compressor where the cycle repeats itself.

The piston is a simple device with no movable parts. The piston allows a specific "restricted" - metered flow of refrigerant in one direction during cooling operation and allows free un-restricted refrigerant flow in the reverse cycle - heating mode of a heat pump *(figure 1).*

Always size the piston based on the recommended factory specification and/or the piston provided by the manufacturer with the outdoor unit.

Figure 1

The biggest drawback to air conditioning systems utilizing a piston as a metering device is that this type of metering device can only do one thing, create a fixed pressure drop within the operating system. If the inside load conditions change, the piston cannot adapt or make any adjustments to the amount of refrigerant flow. It could take a significant amount of run time for an air conditioning system to catch up if the load conditions suddenly change. For this reason, piston type metering devices are not used in commercial or higher efficiency equipment, nor are they recommended for use with zone systems as these systems can have continually changing load conditions.

Thermostatic Expansion Valves (TXV) on the other hand are the best at controlling refrigerant flow in systems that have changing load conditions. A TXV does one thing and one thing only. It will control the flow of refrigerant by maintaining a specific superheat in the evaporator coil when the compressor is running. As load conditions change, the valve will open or close automatically. This keeps the evaporator coil full of refrigerant and operating as efficiently as possible at all times, even as load conditions change. The key is in understanding how a TXV operates and how the valve adapts to changing conditions.

Looking at an expansion *valve*, the main point here is that it is a valve! It has the ability to open, close or modulate somewhere in between in order to control the refrigerant flow. It is the mechanical components within the valve assembly that make it function.

There are three operating forces that make an expansion valve function. One opening force and two closing forces. The opening force is created by the downward pressure on the diaphragm assembly from the refrigerant within the sensing bulb assembly. As the temperature of the refrigerant in the sensing bulb warms there is a direct correlation as to the amount of pressure or force exerted on the valve diaphragm. This causes the internal valve components to move to a more open position *(figure 2).*
The other two forces present in an expansion valve move the valve to a more closed position. These forces come from the suction gas pressure within the valve body trying to push up on the diaphragm and an internal spring that also provides a closing force.

"A/C Metering Devices" Continued on page 5

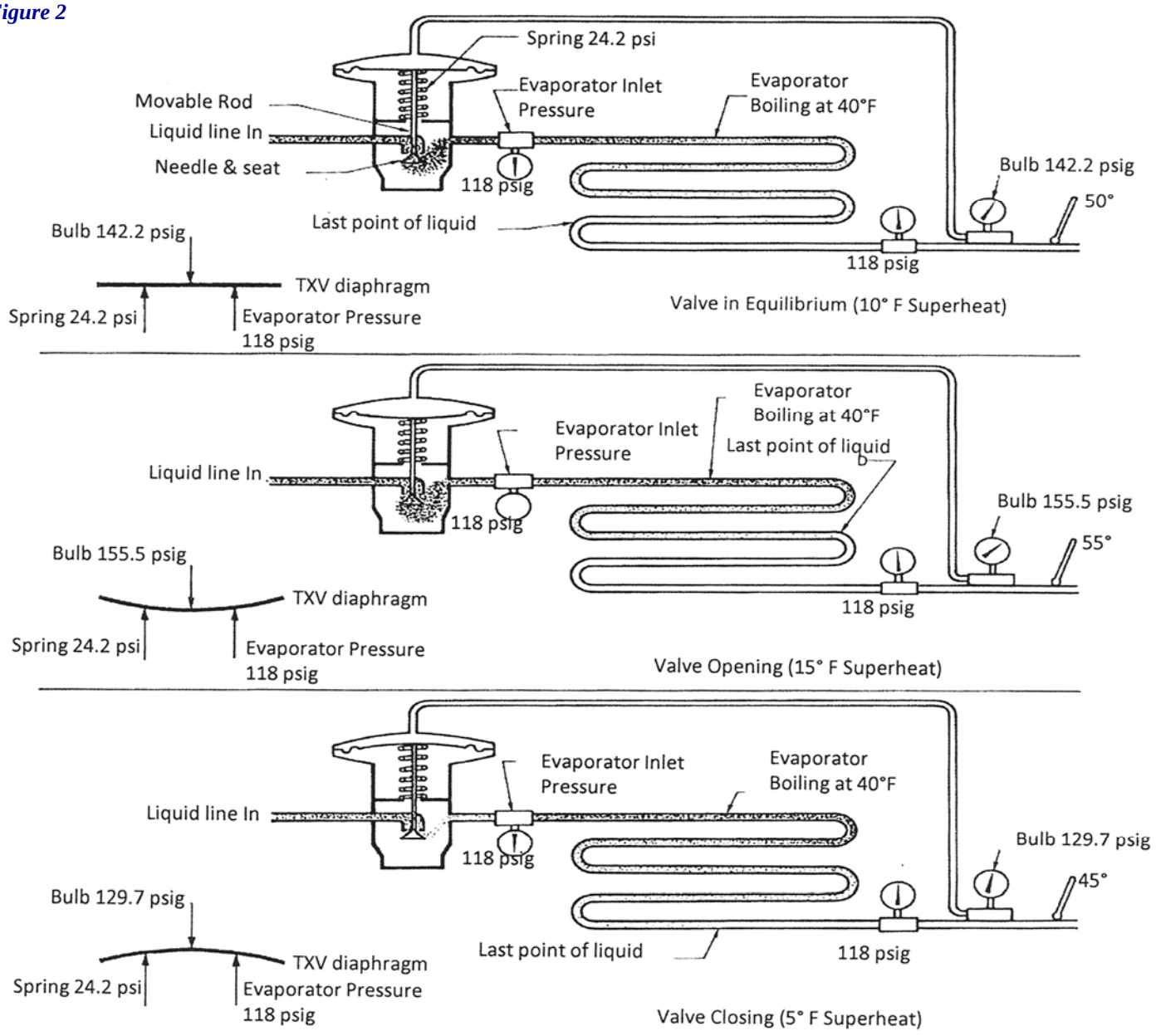
"A/C Metering Devices" Continued from page 4

During operation, if the load conditions are high, the sensing bulb will be warmer. This creates a higher pressure than the pressure of the suction gas plus spring pressure exert. The valve will move to a more open position. If the load conditions are low, the sensing bulb is cooler. This will decrease the pressure on the diaphragm, the suction pressure plus the spring pressure will overcome the sensing bulb pressure and will cause the valve to move to a more closed positon. Thermostatic expansion valves constantly adjust to changing load conditions in order to bring the superheat of the evaporator coil back to a state of equilibrium. If the load is more consistent, the expansion valve will also remain consistent and keep the refrigerant flow at the proper level. Under all conditions, high load, low load, or consistent load, the thermostatic expansion valve will maintain a specific superheat within the evaporator coil.

On the majority of TXV's used in the air conditioning industry, you will find a thin copper line that connects somewhere close to the outlet of the evaporator coil. This connection might even be on the suction line. This connection provides an accurate pressure reference to the underside of the diaphragm (figure 3) within the expansion valve. TXV's of this type are referred to as "external equalize TXV's." Any time an evaporator coil has a dis-

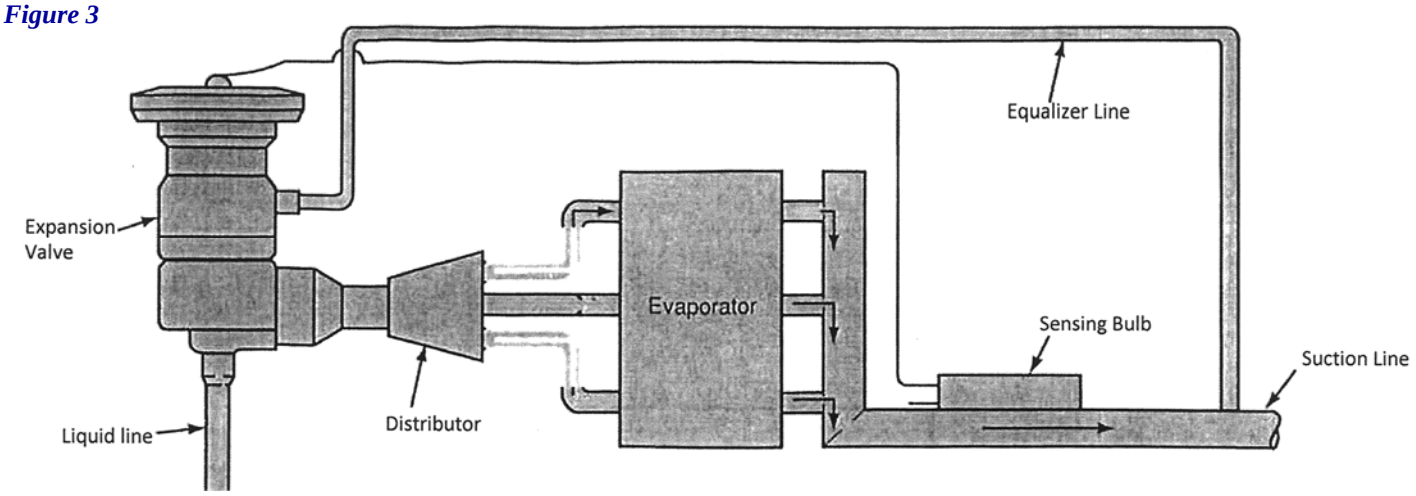
"A/C Metering Devices" Continued on page 6

Figure 2



"A/C Metering Devices" Continued from page 5

Figure 3



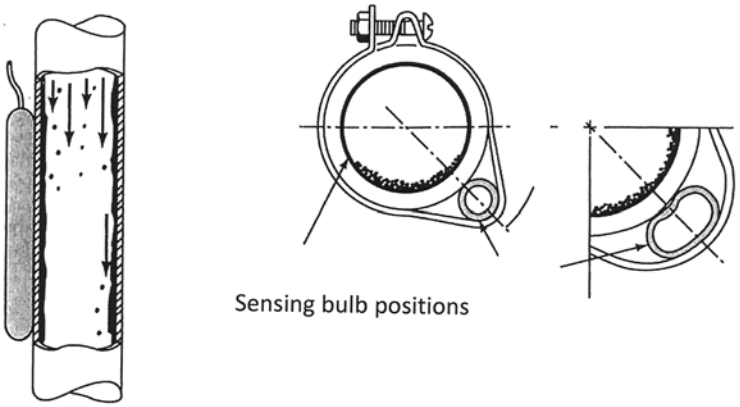
tributor with multiple smaller capillary tubes feeding the coil circuits or if there is more than a 4 PSIG pressure drop through the coil an "external equalizing expansion valve" must be used.

If the expansion valve is installed outside of the plenum and is located in "unconditioned" air space it is very important that the valve body and the sensing bulb are wrapped and insulated.

Bulb position is important too. If the sensing bulb is horizontal, it should be securely mounted somewhere between the 2-4 or 8-10 o'clock positions on the suction line (figure 3). If the bulb is going to be positioned vertically, make sure that the thin capillary tube is coming out of the top of the bulb and not from the bottom.

Lastly, if you are questioning if the expansion valve is working or not, follow this simple test. While the air conditioning unit is running take the TXV sensing bulb, disconnect the band (s) or clamp holding it to the suction line and wrap a hot towel around it. This will simulate a large heat load and force the valve to full open. Then dip the bulb into a cold glass of water. The cold water will simulate a "no or low load" condition and valve will immediately throttle to a minimum open/closed positon.

Figure 4



COMING SOON

4th Annual

CABELA'S PRESEASON EVENT

Last of week of August 2015

Details are still being finalized.
Please watch your email for confirmed dates!

WHAT'S NEW

We offer seasonal items on our website at a discounted price for "online orders" only.
This special changes every two weeks.
(Please note: Discount applied at time of invoicing.)

Visit our website at
www.monroeequipment.com
and place your order today!

NEW PRODUCT

Rich Taylor

Monroe Equipment continues to grow our Nu-Calgon product line. Nu-Calgon has a complete line of specialty chemical products for the HVAC industry.

We carry Nu-Calgon coil cleaners, leak seal, vacuum pump oil and Rx11 flush. We have recently added some new Nu-Calgon items including CompleteCare Mini-Split Kit, EasySeal Direct Inject, Pan Spray and more!

Stop in and see our display and pick some up today. These items are also available on our website at www.monroeequipment.com.

Monroe Equipment is in need of infectiously positive sales professionals!

We have two immediate openings for Dealer Development Representatives, one in the Fox Valley area and one in Southern Wisconsin. We also have an immediate opening for a Commercial Products Manager to promote and educate the construction and HVAC community on our commercial specific products.

We are looking for individuals that are goal driven, team building oriented, and professional growth hungry that would excel in a rapidly expanding business like Monroe Equipment.

HVAC experience is not required.
Dedicated customer service is!

Please visit our website for complete job listing details.

Up Coming Events

JULY 3, 2015 - *Menomonee Falls & Oshkosh*
Closed for 4th of July Weekend

JULY 4, 2015 - *Menomonee Falls & Oshkosh*
Closed for 4th of July

LATE AUGUST - *Details Coming Soon!*
Cabela's Preseason Event

SEPTEMBER 5, 2015 - *Menomonee Falls & Oshkosh*
Closed for Labor Day Weekend

SEPTEMBER 7, 2015 - *Menomonee Falls & Oshkosh*
Closed for Labor Day

The Monroe Igniter **is a quarterly publication created exclusively for customers of Monroe Equipment, Inc.**

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