



REGIONAL STANDARDS

Matt Schneider

The Only Thing That Stays The Same Is Change!
Regional Standards Are On The Horizon.

In 2007, the US Congress passed the Energy Security and Independence Act. This bill has set a new precedent by giving the Department of Energy the power to set regulations, with regards to minimum efficiency standards, specific to different regions of the country. These regional minimum efficiency standards are set to go into final effect on May 1, 2013. Many of us in the industry are still unaware of the specific detail and changes, and areas such as enforcement are still yet to be determined.

These new regional standards will have severe and potentially expensive impacts on our industry and our customers. The DOE has split the country up into three different regions – the South, Southwest and Northern Region. Wisconsin falls into the Northern Region and given the fact that the average Heating Degree Days in our region are greater than or equal to 5000, the impact of the new minimum efficiency standards are solely on non-weatherized, forced air, heating equipment. On May 1, 2013 the minimum efficiency for this equipment installed in our state will be 90%. This would pertain to new construction and replacement applications, in both residential and commer-

cial applications where residential forced air products are being installed. In addition, oil fired, forced air product will need to meet a minimum efficiency of 83%.

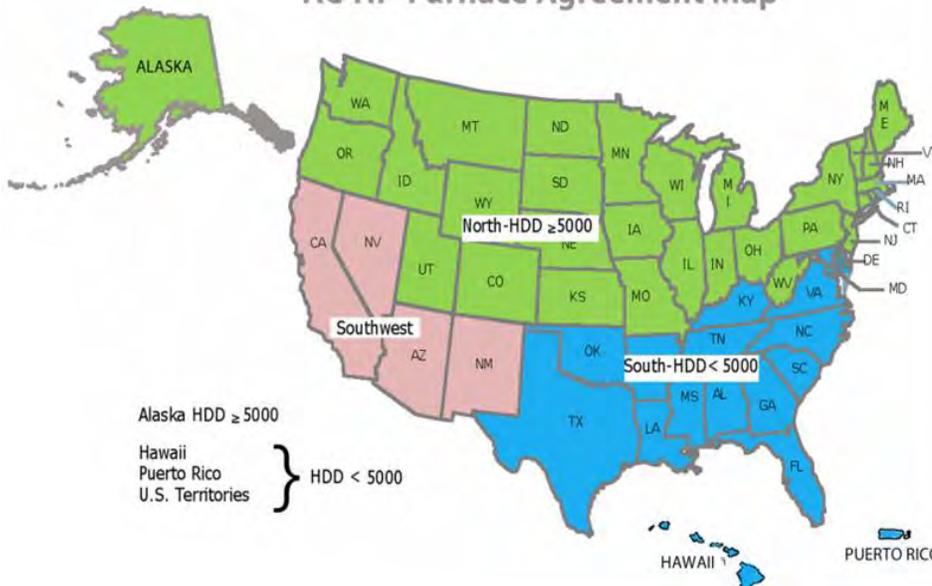
These new regional requirements are very different from previous changes in our industry. Unlike the 2006 change from 10 to 13 SEER a/c efficiency and the 2010 refrigerant change from R22 to R410a, there is no “in stock” exception. The May 1, 2013 date is set in stone and units with which the distributor AND the contractor have left will be become dead stock and will not be able to be installed following this deadline. Therefore stocking up on 80% efficient furnaces prior to the deadline will be impractical and downright foolish. Monroe Equipment will cease and desist ordering 80% efficient furnaces for stock shortly, but will gladly order equipment as needed for the duration of time between now and May 1, 2013.

North – 2013	
Gas Furnace	90% AFUE
Oil Furnace	83% AFUE

South – 2013	
Gas Furnace	80% AFUE
Oil Furnace	83% AFUE

Southwest – 2013	
Gas Furnaces	80% AFUE
Oil Furnace	83% AFUE

AC-HP-Furnace Agreement Map



Many questions have been raised about commercial products. These minimum standards do not apply to commercial packaged products such as unit heaters, roof top units and Magic-Paks. This classification of products fall under ASHRAE guidelines and will remain unchanged at this moment.

The effects of these regional requirements are mind-boggling. Many of you have customers with 80% furnaces in their unconditioned attics or multifamily buildings with 80% efficient furnaces

UNDERSTANDING MERV FILTER RATINGS

Kenneth Jung

The word MERV is actually an acronym that stands for:

**Minimum
Efficiency
Reporting
Value**

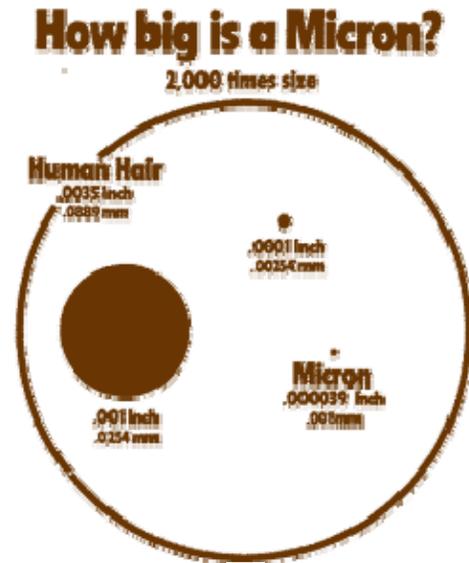
MERV is a measurement scale designed by ASHRAE 52.1 (American Society of Heating, Refrigerating, and Air Conditioning Engineers) to rate the effectiveness of air filters. The MERV ratings use values that range from 1 up to 16. The higher the MERV value is, the more efficient the filter should be in trapping airborne particles.

But what does MERV really mean to the consumer? As stated above, the higher the MERV value, the more efficient the filter is, or the higher the MERV rating, the fewer dust particles and other airborne contaminants that can pass through the filter. As the MERV rating gets higher, the particle size has to be smaller and smaller in order to be able to pass through the filtering media.

ASHRAE recommends MERV 6 or higher. US Department of Energy recommends MERV 13 and LEED recommends MERV 8 as a minimum value.

MERV ratings are determined by adding specific size particles into a controlled testing environment. As the particles flow through the air stream, a laser particle counter samples the air before and after it passes through a filter media. The particle counts are then compared to calculate the Particle Size Efficiency of the tested filter media. The process is repeated five times on the same filter for a total of six trials. Based on this information, a comparison is made to a “MERV Parameters chart” and a MERV rating is assigned based on the worst result for that type of filter media. (M = Minimum)

The 1 – 16 MERV rating scale measures the particle size in microns. The higher the MERV number, the better the filter performance is at removing smaller particles. Microns are that small value used to also measure the quality of a vacuum on an air conditioning or refrigeration sealed system, essentially a very small unit of



measure. One micron is equal to one millionth of a millimeter or 1/25,400 of an inch. On the MERV scale, the particle size used for grading filters is from 0.3 up to 10 microns. Maybe a better example of just how small of a 0.3 micron particle is to consider that a human hair is approximately 100 microns thick.

Most common filters found in residential use fall between a MERV 1 - 4 rating. Typically, disposable fiberglass or synthetic media, a 1" thick panel type filters does a minimal job of filtering the air. A MERV 4 filter has a less than 20% chance of trapping a 3 to 10 micron size particle.

MERV 5 - 8 are better, will collect particles as small as 3 microns, with MERV 8 filters rated at 70 – 85% of trapping a 3 - 10 micron size particle. These filters can be either pleated with cotton or polyester media and are between 1 to 6 inches thick. Other synthetic materials may also be used in this filter classification.

MERV 9-12 filters are used in many commercial and industrial applications and will stop particles in the 1 to 3 Micron range. These filters are a great choice for home owners who want the best dust filtering control possible without going into HEPA type systems. A MERV 12 filter is rated at 90% or better with particles of 3 to 10 microns and at 80%+ on particles between 1.0 – 3.0 microns in size.

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As we round out the top of the list, MERV 13 – 16 rated filters will trap particles as small as 0.3 at varying percentages from 75% up to 95% or better. With any particle size bigger than 1.0 microns, all of the filters in this category have a 90% or better rating.

Since the original testing standard was enacted back in 1987, ASHRAE updated the standard in 1999 and now uses ASHRAE 52.2 as the standard for MERV ratings. Not much has changed other than adding additional categories from MERV 17 – MERV 20. These categories deal with particle size <0.3 µm such as virus and combustion smoke particles and use HEPA (High Efficiency Particulate Air), ULPA (Ultra Low Penetration Air) or SULPA (Super -ULPA) filters. Filtering efficiency at these levels is at or well above 99% for all micron sizes, even those that are smaller than 0.3 microns in size.

MERV Rating Chart

ASHRAE Standard 52.2			ASHRAE Standard 52.1	Application Guidelines			
MERV Rating	Particle Size Removal Efficiency			Dust-Spot Efficiency Percent	Particle Size and Typical Contaminant	Typical Applications	Typical Air Filter Type
	0.3 to 1	0.3 to 1	0.3 to 1				
20	≥ 99.999	in 0.1 - 0.2 µm particle size		-	< 0.3 µm Virus (unattached) Carbon Dust Sea Salt All Combustion Smoke	Electronics Manufacturing	HEPA/ULPA Filters
19	≥ 99.999	in 0.3 µm particle size		-			
18	≥ 99.99	in 0.3 µm particle size		-			
17	≥ 99.97	in 0.3 µm particle size		-			
16	> 95	> 95	> 95	-	0.3-1 µm All Bacteria Droplet Nuclei (Sneeze) Cooking Oil Most Smoke Insecticide dust Most face powder Most paint pigments	Superior Commercial Buildings	Bag Filter Non-supported (flexible) microfine fiberglass or synthetic media, 12 - 36 inches deep
15	85-95	> 90	> 90	> 95		Hospital Inpatient Care	
14	75-85	> 90	> 90	90-95		General surgery	Box Filter Rigid style cartridge, 6 - 12 inches deep
13	< 75	> 90	> 90	80-90			
12	-	> 80	> 90	70-75	1-3 µm Legionella Humidifier Dust Lead Dust Milled Flour Auto Emission Particles Nebulizer Drops	Superior Residential	Pleated Filter Extended surface with cotton or polyester media or both, 1 - 6 inches thick
11	-	65-80	> 85	60-65		Better Commercial Buildings	
10	-	50-65	> 85	50-55		Hospital Laboratories	Box Filter Rigid style cartridge, 6 - 12 inches deep
9	-	< 50	> 85	40-45			
8	-	-	> 70	30-35	3-10 µm Mold Spores Dust Mite Body Parts & Droppings Cat and Dog Dander Hair Spray Fabric Protector Dusting Aids Pudding Mix	Better residential	Pleated Filter Extended surface with cotton or polyester media or both, 1 - 6 inches thick
7	-	-	50-70	25-30		Commercial buildings	
6	-	-	35-50	< 20		Industrial workspaces	Cartridge Filter Viscous cube or pocket filters Throwaway Synthetic media panel filters
5	-	-	20-35	< 20			
4	-	-	< 20	< 20	> 10 µm Pollen Dust Mites Cockroach Body Parts & Droppings Sanding Dust Spray Paint Dust Carpet Fibers	Minimum Filtration Residential Window Air Conditioners	Throwaway Fiberglass or synthetic media panel Washable Aluminum mesh, foam rubber panel Electrostatic Self-charging (passive) woven polycarbonate panel

GETTING TO KNOW YOU

Donna Inman

It is my privilege to introduce you to Andrew Sorenson; co-workers call him Andy.

Andy has been part of the Engineering Department at Monroe since 1987. (That's like the last century!) Monroe was his first JOB after earning an Associate Degree in HVAC/R Technologies at MATC. Andy has been a member of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) since 1987. (For your information, ASHRAE was founded in 1894, which is like 2 centuries ago, so Andy was not its first member.) For 17 years, Andy has been accredited with Wisconsin Designer of Engineering Systems. That means he has a license required for a person to perform in the preparation of plans and specifications, consultation, investigation and evaluation in connection with the preparation of plans and specifications in the fields or subfield of heating, ventilation and air conditioning. Now, doesn't that sound impressive?!

Andy's duties here at Monroe include project estimating, inside sales and engineering assistance. As well as on-site project assistance, Andy will assist with any type of call from parts assistance, order entry to technical service with HVAC sizing. Andy also has the title of the "specialist" for gas pressure regulators.

Andy has lived within 10 miles of Monroe Equipment all his life. Stories sometimes come out about his boyhood hangouts and fun times with friends and family. He was a very active all American youth. Prior to injuries, Andy was active in wrestling, soccer and baseball. He grew up being the little brother of one sister and one brother.

Andy has a contagious laugh that filters throughout the building. If you were among the group on the Monroe Dealer trip last year, you know Andy outside of work! He was the only Monroe Co-worker chosen by his co-workers to go on that dealer trip. That alone tells you that Andy is a special person and a hard worker.

Andy is also a husband and father. The little love of his life is his one and only precious daughter, Megan. She is a very active and cute little brown haired girl who just turned 6 years old. Talk about active, it seems Megan could run rings around Andy at that age! His sense of humor and facial expressions are unique and are rubbing

off on Megan. Her interests, subject to change in 5 minutes, include water parks, princesses and SpongeBob. Megan would also say that she loves school.

The other special lady in Andy's life is his wife, Chris. When she calls in, she will ask for ANDREW, and one would think he must be in trouble! (Just trying to make a joke.) Chris is very fun loving and it is hard not to smile in her presence.

Andy likes hunting, fishing and mountain biking. He enjoys putting on a Barbecue and just cooking in general. Co-workers always enjoy special treat days or holidays when Andy will prepare his famous sausage medley for us.

Andy is a special member of the Monroe Team!



Andy Sorenson

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that will not be easily vented to the outside with PVC if replacement is required. My only suggestion is to educate your customers early and begin an aggressive sales campaign to replace as many of these existing furnaces with new furnaces while they are still available.

The jury is still out on who will enforce these new minimum efficiency standards and how they will do that. In an all too familiar manner, the government has mandated a change to our industry, has set a firm date for action, but has failed to be specific on enforcement and penalty. They have asked the industry to present a plan on who should take responsibility for the enforcement of these standards and what penalties a distributor or contractor will pay for non-compliance. There are several different HVAC professional organizations, with ACCA (Air Conditioning Contractors of America) taking a leadership role, that are currently working on proposals that will not put any more undue burden on the contractor. As this situation evolves, we will make sure to keep you informed.

GEOSYSTEMS

Ben Lane

Monroe Equipment was pleased to announce the addition of the GeoSystems Econar & GeoSource lines of geothermal heat pump systems to our family of products in the past few months. Several



of us had the privilege of traveling to the company headquarters in August for some training on geothermal systems in general and also specific product training on the GeoSystems line of equipment and accessories. Our eyes were really opened, as a result of this training, to not only the economic and environmental benefits of going geothermal but also the great opportunities that lie in front of us to serve a market that had been relatively untouched by Monroe in the past.

The economic benefits of a geothermal system to the consumer are numerous despite the considerable initial upfront cost. The initial installed cost of the system must be carefully weighed against the cost of ownership or life cycle cost of both the geothermal system and the traditional fossil fuel burning appliance it serves to replace. Looking at it from an efficiency standpoint, a traditional high efficiency gas-fired unit will have an efficiency in the neighborhood of 95% while a typical geothermal system will have a COP (Coefficient of Performance) ranging from the mid threes to mid fours. Simply stated, this means that with a typical high efficiency furnace, for every 1 unit of gas input we can expect to receive 0.95 units of heat output while a geothermal system will produce 3.5 to 4.5 units of heat output for every 1 input of electrical energy. This is a substantial energy savings for the consumer which has a direct effect on utility bills, even considering the relatively low-cost of natural gas in our geographic region in comparison with electricity cost. A geothermal system is even more so attractive when a life cycle cost comparison is done between a traditional LP or oil fired appliance, where fuel costs are constantly on the rise, and a geothermal system. Typical cost-payback analysis of

these types of systems often show paybacks in as few as five years, beyond which is just money in the bank for the consumer.

The environmental benefits of a geothermal system are obvious and tend to speak for themselves. In using a geothermal system, we are able to harness the energy of the earth and use it as the driver to either add or remove heat energy from our homes rather than by burning our finite natural resources to do so. The only energy required is that which is used to move the heat from one place to another. In addition, by not burning gas for heating purposes, we reduce our carbon footprint and the amount of greenhouse gases released into the atmosphere.

The GeoSystems line of geothermal heat pump products provides many opportunities to both the contractor and supplier alike. A major drawback to geothermal systems in the past, particularly in a harsh winter climate such as ours, has been the ability to produce enough heating capacity to heat our homes without dramatically over sizing our cooling systems and well fields as a result. Traditional geothermal products and systems have been designed for the more moderate southern climates where heating capacity is not of primary concern. That is not the case with the GeoSystems line of Econar Cold Climate series geothermal heat pump units. These units were designed with the harsh winter climates of the upper Midwest in mind and it shows when comparing the heating capacity of a typical Econar unit to that of its five closest competitors. A 3-ton Econar Cold Climate will deliver approximately 40,000 BTUH of heating capacity compared with an average 28,000 BTUH for the other top five manufacturers. That's a difference of 12,000 BTUH or an increase in heating capacity of more than 40%. Most systems would require a backup electric strip heater to provide the amount of heating capacity produced by a single Econar Cold Climate unit. This is also a major benefit in terms of the well field cost where the 3-ton Econar unit only requires 3 loop circuits to deliver 40,000 BTUH of heat while other manufacturers unit of comparable capacity would require 4 well field loops. At a typical cost of \$2,300 per horizontal loop that is a substantial savings that can be passed along to the owner.



FASCO INDUCER MOTORS

Ron Wilson

We now carry FASCO Inducer Motors for all your inducer needs. Whether it's Amana, Goodman, ICP, Lennox or Rheem, we can cross reference the inducer needed.

Below is our FASCO Inducer Motor/OEM Cross Reference Sheet. We currently stock all the inducers listed below. Please call one of our Parts Specialists for assistance.

FASCO Inducer Motor/OEM Cross Reference Sheet

Cross References	
RHEEM	
A079	Rheem/Ruud 74-70-21496-03-01, 74-70-21504-03-04, 7021-5615, 7021-10262, 4MH15 Goodman B185900, 7021-6804, JA1M106, JA1M137, 7021-10262, 4MH15, Trane B1W24, WG94X167
A136	Rheem/Ruud 7062-3861, 70-24033-01-13, RF-RFB136, 4MH44, 28686, 70-24033-01
A090	Rheem/Ruud 70-21496-01, 7021-5239, 7021-5715, JA1M102, 7021-10268, 4MH21, 74-70-21496-01-06
ICP	
A173	Inter City Products 7062-4785, Alltemp (Rotom) 7062-4832, R7-RFB350, 1011350
A171	Inter City Products 7062-4783, 7062-4705, 7062-4274, 7062-4201, 7062-4549, 1010491, 1010527P, 1011096, 1011410, 1011412
A170	Inter City Products 7021-10299, 7021-10702, 7021-8918, 7021-9594, 7021-9935, 7021-9936, 1010312, 1010526, 1010928, 1011095, 1011097, 1011409, 1164280, 7021-9362
A179	ICP 7021-8693, 1006168P
GOODMAN	
A157	Goodman 7002-2307-, B1859005
A162	Goodman 7021-8656 (Includes Centrifugal Switch), B295900
A140	Goodman 7021-9087, 7021-9000, B2833001
LENNOX	
A200	Lennox 7002-2975, 313L5501
A163	Lennox 7021-9450, 67K0401
A213	Lennox 7021-10376, 18L0401
AMANA	
A158	Amana 7062-3151, 7062-3703, 7062-4774, D98686-7, D9868614
COMMERCIAL TOP SELLERS	
A150	Commercial Inducer - Trane 7021-7833, 7021-8928, 7021-10286, C661452P01, X38080029010, 4MH39
A148	Commercial Inducer Heil-Quaker 7021-9237, 7021-7617
A241	Commercial Inducer Rheem 7021-9567

EXTENDED WARRANTY REMINDER

Sandy Burns

To qualify for the 10-year limited extended parts warranty for ALLIED AIR, the dealer or homeowner must register their Armstrong Air, AirEase or Concord equipment within 60 days of purchase. To register go to: www.alliedairwarranty.com

Coverage requirements:

- Unit is installed in residential applications, which is an owner-occupied, single family residence.
- Unit is part of a complete ARI matched system and installed by a state certified or licensed contractor.
- This warranty applies only to the original purchaser of the unit and cannot be transferred.

If you have any questions, please give me a call.

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We here at Monroe Equipment are excited about the addition of the GeoSystems Econar & GeoSource lines of geothermal heat pump systems to our family of products. We feel very strongly about the economic and environmental benefits of going geothermal and also the great opportunity that these products allow us in a market that had been relatively untouched by us in the past. We hope you feel the same way too and encourage you to contact one of our Engineering Department personnel with any general or specific geothermal questions or applications you may have.

Up Coming Events

NOVEMBER 22, 2012

Monroe Equipment CLOSED

NOVEMBER 24, 2012

Monroe Equipment Parts CLOSED

DECEMBER 24, 2012

Monroe Equipment CLOSED

DECEMBER 25, 2012

Monroe Equipment CLOSED

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



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