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WHAT DO WE VALUE?

Safety

Safe environments through planning and execution.

Customers

Develop exceptional partnerships through customer-first philosophy.

Integrity

Fair, honest and truthful to each customer, each employee and to the community as a whole.

Quality

Best-in-class results, driven by decades of experience.

Innovation

Utilize latest technologies to maximize building safety and efficiencies.

Single-Source

Put all your needs in the industry's most capable hands with NAC's full service capabilities.

A MESSAGE FROM LYNN

As I sit here in the office in mid-August, I am wondering to myself where the future is going to take us? Just this year, although it seems like forever ago, I was watching my daughter start her final season of fast pitch as a senior in college. In March, we were in Florida for spring ball when everything seemed to come to an end. The next couple months were filled with information changing daily on what to do, how to do and what is going to happen?

It is now 5 months later and NAC has had one of its busiest summers. The early hot summer brought work to the service department and construction teams secured work early on. Service has maintained their workload and construction has several projects that are multiple years. We are asking everyone at NAC - field, office and sales to keep promoting NAC and looking for business. NAC hasn't seen a downturn in the economy, but everything that everyone can do will help assure that we all stay busy. Sticking together, we will make it through these uncertain times and NAC will continue to be as strong as we are today.

Keep smiling! Even if the smile can't be seen, it can be felt. Stay safe and positive. And as always, thanks for the great effort providing services to our customers. You are all heroes. Enjoy the rest of your summer.

-Lynn Bishop

Our Mission

To deliver Total Building Solutions that operate efficiently, are sustainable and make environments safe, secure and comfortable.

Our Vision

To provide solutions by understanding customer needs, leveraging technologies, maximizing efficiencies, building trusted relationships and empowering employees success.

Honoring the Life of Steve Houle

With very heavy hearts and great sadness, we want to let you know that Steve Houle passed away on August 20th, 2020. Steve worked for NAC nearly 20 years. His abilities and skills, his outstanding character and outgoing personality were instrumental to the success of NAC.

He is loved by many friends and coworkers at NAC and will be terribly missed. Please keep him, his family and friends in your thoughts and prayers.



2010 NAC Christmas Party

It was a pleasure and an honor to be a coworker and more importantly, friends with Steve. Other than that, I'm at a loss for words right now. I will always hang on to the memories. These times and many others are priceless to me. Thank you for Serving our Country as well Steve! Now this Veteran is resting. Gone from here, but never forgotten.

-Mike Savelkoul

Visitation will be 4-8 PM Wed., Aug. 26th at Roberts Family Life Celebration Home
555 SW Centennial Dr., Forest Lake, MN.

<https://www.legacy.com/obituaries/twincities/obituary.aspx?n=steven-w-houle&pid=196683962&fhid=6344>



NAC NEW HIRES THIS QUARTER

Welcome to all of our new employees!

- ◆ **Thomas Meath** - Software Application Engineer
- ◆ **Jeremy DeClark** - Software Application Engineer
- ◆ **Thomas Adams** - Software Application Engineer
- ◆ **Michael Larson** - Construction Project Manager
- ◆ **Matthew Troendle** - Construction Project Manager
- ◆ **Nathan Brekke** - Account Manager
- ◆ **Brandon Alexander** - Construction
- ◆ **David Saxton** - Construction
- ◆ **Richard Lorenz** - Construction
- ◆ **Jeffrey Roesler** - Construction
- ◆ **Zachery Smoley** - Construction
- ◆ **Dana Lonien** - Construction
- ◆ **Andrew Koshiol** - Construction
- ◆ **Thomas Larson** - Construction
- ◆ **Eric Tocko** - Construction
- ◆ **Eric Larson** - Construction
- ◆ **Aaron Staab** - Construction
- ◆ **Tracy Stampfle** - Construction
- ◆ **Thomas Horin** - Construction
- ◆ **Kong Yang** - Construction
- ◆ **Christopher Grubb** - Construction
- ◆ **Terrance White** - Construction
- ◆ **Andrew Tonga** - Construction
- ◆ **Jared Christianson** - Construction
- ◆ **Justin Zierhut** - Construction
- ◆ **Blake Bowman** - Construction
- ◆ **Larry Carlson** - Construction
- ◆ **Peyton Housker** - Construction
- ◆ **Brent Hansen** - Service Tech
- ◆ **Wellington Wood IV** - Service Tech
- ◆ **Megan Schloesser** - Service Coordinator
- ◆ **Brandon Hackley** - Construction
- ◆ **Michael Haubrich** - Construction
- ◆ **Matthew Bowar** - Construction
- ◆ **Terry Brathwaite** - Construction
- ◆ **Coltin Paddock** - Construction
- ◆ **Luke McEiver** - Construction
- ◆ **Adam Preiss** - Construction
- ◆ **William Witzany** - Construction
- ◆ **Mark Seidl** - Construction
- ◆ **Omar Al-Shams** - Construction
- ◆ **Amy Vorpapel** - Construction
- ◆ **Cameron Drexler-Strickland** - Construction
- ◆ **Aaron Woodward** - Service Tech
- ◆ **Michael Ellis** - Construction
- ◆ **William Laursen** - Construction
- ◆ **Haydon Dvorak** - Construction
- ◆ **Daniel Clark** - Construction
- ◆ **Justin Melbostad** - Construction
- ◆ **Todd Huebl** - Service Tech
- ◆ **Ethan Johnson** - Fabrication
- ◆ **Joe Sundsmo** - Construction
- ◆ **Tyler Fiemann** - Service Tech
- ◆ **Casey Cartier** - Service Tech
- ◆ **Thomas Niemczyk** - Service Tech
- ◆ **Brian Lewis** - Service Tech
- ◆ **Jason Boyum** - Service Tech
- ◆ **Christopher Prose** - Construction
- ◆ **David Koski** - Construction
- ◆ **Thomas Hewitt** - Construction
- ◆ **Robert Monson** - Construction

PROJECT SPOTLIGHT

South View Middle School Renovation

Project: South View Middle School

Location: Edina, MN

Final Construction Cost: \$9,311,987.96

General Contractor: Kraus-Anderson

Architect: Wold Architects & Engineers

Engineer: Wold Architects & Engineers

Date Completed: December, 2018

NAC Mechanical Project Manager: Brent Thompson

NAC Technology Project Manager: Ken Cronk

NAC Field Superintendent:

Theodore Snyder - Plumbing

Jim Bistodeau/Tony Determan - Pipe Fitter

Mike Underland - Sheet Metal

Ryan Pittman - Software Application Engineer

Matt Nichols - Engineering

**Thank you to all who made
this project a success!**



Project Scope

Complete upgrade of the existing mechanical and plumbing system along with new integrated Alerton Controls. The mechanical upgrades included a new chiller plant, RTU's, active chilled beams, wall induction units, VAV's, boiler plant, pumps, piping and ductwork. The upgrades to the plumbing system included new bathrooms, plumbing fixtures, domestic water pipping, waste pipping, water heaters and sump pump.

EMPLOYEE SPOTLIGHT



Emily Johnson has been with NAC for a little over a year and has been in the industry for 4 years. She is a 3rd Year Service Pipe Fitter with an AAS degree in HVAC with a special boiler license, universal EPA certification, RU PLT license, OSHA 30 and was awarded Outstanding Apprentice her first year in the LU455 JATC program.

Emily's job consists of troubleshooting and repairing heating and cooling equipment. Most days you can find her working on maintenances, troubleshooting and repairing HVAC equipment. The largest job she has worked on was the Watertown Middle School Geothermal System. Emily was grateful to work with a knowledgeable team on such a complex project.

Emily enjoys hunting, fishing, anything outdoors and spending time with her dog. She is double jointed in all of her fingers. Emily would like to pursue speaking about women in the trades.

CUSTOMER SHOUT-OUT'S

Here are a few comments NAC has received on your great service and commitment to our clients!

*I just want to congratulate and thank you for the professional job performed by the **NAC crew** working on our boiler project here at the Linden Building. Your staff has been exceptional to work with and their professionalism is remarkable. I have not received one negative comment regarding this project from anyone here in this building, that is unheard of here!*

The switch to the new boilers was completed December 20th without any issues and to this point they have run flawlessly.

We are extremely pleased with the pace of this project as it nears completion and look forward to working with NAC in the future.

Karl, CenterPoint Energy

*I just wanted to take a minute to commend **Jessica** working today at the UMN - PWB project site.*

We were standing in the room discussing the work when Jessica got our attention and told us we'd need ear plugs if we were going to stay in the room. Heeding her warning, we stepped out into the hall before the activity began.

This was a simple gesture on her part but, in doing so, demonstrated ownership and initiative.

Brett, Gardner Builders

*I wanted to take a few minutes quick to let you know that I really appreciate the job that **Tim Moore** does with our IT needs. I have never worked with an IT expert who was so user-friendly and willing to be flexible to the user's needs as Tim is. He is very rare to find in the IT field, and I'm glad we have him at NAC, so I just wanted you to know what myself and other think of him and the great job he does!*

Mike, NAC

*First, I want to compliment the work **Shelby Rogney** is doing for us. She is efficient, communicative, organized and provides me with outstanding customer service and collaboration. Be sure her supervisors are aware please.*

*Thanks again for the great service you (**Marc Tolvay**) and Shelby always provide.*

Steph, CVS Coram

*Thanks for sending **Tucker**! He's great! Very professional and approachable! He did a great job!*

Kim, Tycon Companies

*Just to let you know - they (**Andy Trusler**) were prompt and very thorough. Great company with great service! Glad they are your vendor for this type of work. The tech who came really went above and beyond on a super muggy evening.*

Joelle, Apartment Resource

***Mohamed** – I was very impressed by the graphical interface and the way that the control sequences worked out. The graphics and text pages were very intuitive and complete, but not overwhelming with too much info provided. You can forward this message to your boss as I was very pleased with the installation and with how well the testing went. I also appreciated your help in getting me started. It has been a pleasure to have this opportunity to work with NAC once again.*

Steve, Edi-Dolejs



10 TROUBLESHOOTING, DIAGNOSTIC TIPS FOR HVAC TECHNICIANS IN THE FIELD

Educators Explain Their Approaches to Repairing HVACR Systems



MAKE A LIST: Establishing a routine and consistently working through it like a checklist is one way that technicians can improve their troubleshooting.

January 28, 2019

Angela D. Harris

Making the correct diagnosis requires skill and patience on behalf of the HVACR service technician. Much as a doctor performs tests to gather clues about a patient's ailment, service technicians use tools and procedures to accurately pinpoint why an HVACR system will not function properly. The principles guiding these troubleshooting steps are universal, even if their implementation is not. Technicians and instructors may vary on the proper practice of these skills, but they all agree that troubleshooting and diagnostics are required skills for every technician.

XAVIER'S TROUBLESHOOTING ROUTINE

Gary Xavier is an author and instructor who developed a five-step troubleshooting routine 20 years ago and has been using and teaching it successfully ever since. The current owner of On-Site Consulting Service, Ovid, New York, he has authored 14 HVACR textbooks, including his latest one, "Math for HVACR," published by Goodheart-Wilcox Publisher Inc.

"Because all people learn and understand a bit differently, what works for one may not exactly work for another technician," said Xavier. "But there are fundamental concepts that work for everyone, and that is what I try to convey in my training, because troubleshooting is a skill that has to be acquired by each technician in their own manner."

His five routines are observation, logical thinking, establishing a pattern, accepting help, and practice.

5 Troubleshooting Tips	
1	OBSERVE
2	THINK LOGICALLY
3	ESTABLISH A PATTERN
4	ACCEPT HELP
5	PRACTICE

FUNDAMENTALS: Gary Xavier, author and instructor, developed this five-step troubleshooting routine 20 years ago. He has been teaching it ever since.

1. Observe

Observation sets the tone for how a technician approaches the problem. According to Xavier, it forces techs to take a look at the big picture, pushing them out of parts changer into troubleshooter mode. The approach includes looking for obvious things to help in diagnosis.

“If the unit is not operating at all, start with the electrical supply and work from there,” he said. “If the unit is operating but not performing properly, then start by determining exactly what the system is doing incorrectly. Look before you touch.”

2. Think Logically

According to Xavier, if it is an air conditioning issue, technicians should review the refrigeration cycle. If it is a heating system, he suggested they think about both the process of changing energy from fuel to heat, as well as the sequence of ignition for the burner.

3. Establish a Pattern

Having figured out what process and flow works best for them, Xavier tells his students and contractors to repeat this process the same way all the time.

“This will eliminate missed steps and streamline the troubleshooting process,” he said. “Do not deviate from your pattern.”

4. Accept Help

This help is not just from an instructor or fellow technician. Xavier expressed the importance of the help that every manufacturer provides in written troubleshooting guides. He reminded technicians that manufacturers want their equipment to work properly.

“They will typically also try to help when they are asked,” he added.

5. Practice

Repetition is key.

“It takes years to see all of the potential problems that may be encountered in the field, and even then, as equipment and controls change, a technician has to be constantly learning.”

OBRUTZ'S FIVE DIAGNOSTIC TIPS

Jason Obrutz is a content developer at ESCO Group/HVAC Excellence, as well as the former director of education and lead instructor at the HVAC Technical Institute in Chicago. His top five diagnostic tips are be safe, start at the beginning, always check the thermostat, look and listen, and determine if the problem is mechanical or electrical.

5 DIAGNOSTIC TIPS	
1	BE SAFE
2	START AT THE BEGINNING
3	ALWAYS CHECK THE THERMOSTAT
4	LOOK AND LISTEN
5	MECHANICAL OR ELECTRICAL?

BEST PRACTICES: Jason Obrutz, content developer at ESCO Group/HVAC Excellence, offers these five diagnostic tips.

1. Be Safe

Obrutz challenges technicians to make safety a primary concern and believes it should be expressed in both training and company standards.

“Dangers lurk in the form of high voltage, charged capacitors, pressurized refrigerant lines, gas-carrying lines, combustion gases, confined spaces, etc.,” he said. “Don’t rush or hurry through a job, or you might wake up dead.”

2. Start at the Beginning

When technicians arrive at calls, they often already have a few thoughts as to what is wrong. This can pigeonhole them into a diagnosis before they have done anything with the equipment, said Obrutz.

“Start at the beginning with an open mind,” he said. “Listening to the equipment owner can provide a great deal of information about the system. I advise techs to observe the symptoms for themselves.”



SAFETY STILL COUNTS: Using tools and diagnostic equipment can help technicians determine if the problem is mechanical or electrical, but safety is still a key component of every job.

OBRUTZ'S FIVE DIAGNOSTIC TIPS CONT.

3. Always Check the Thermostat

It can be a common practice for technicians to go straight past the control on the wall and head to the primary heating and cooling equipment. This action, however, assumes that the equipment owner knows how to operate the thermostat properly, which isn't always the case.

"There may be a pre-existing program or improperly set operating parameter that is causing the undesired operation," said Obrutz. "This is especially the case with the newer, internet-capable thermostats and controls."

4. Look and Listen

Common sense can help guide technicians through proper diagnostics, but using some of their five senses will also help provide clues as to what is actually wrong with a system.

"What is the system telling you? What do you hear? What do you not hear?" Obrutz asked. "Are there any noises or smells coming from the system?"

"Using the power of operation in the early stages of troubleshooting can help to shorten the overall time necessary to find the problem," he added.

5. Determine if it's Mechanical or Electrical

Obrutz explained that most system problems can be divided into two categories — mechanical or electrical.

Understanding which one can help technicians choose the correct tools as well as narrow down the cause of the malfunctioning equipment.

"A digital multimeter is necessary to diagnose a bad transformer or contactor, but it is not necessary to diagnose a broken fan blade, loose belt, or low gas pressure," he said. "Recognizing the differences and having the right tools for the right job are a necessity for success."

DECODING THE BASICS

Like Xavier, Obrutz acknowledges that people learn differently, but Obrutz underscored his diagnostic tips with the importance of understanding schematics and sequence of operation. Equipment diversity in the field keeps most technicians from memorizing these elements, but being able to read and understand a system wiring diagram is one of the most important skills a technician can have, according to Obrutz.

"The sequence of operations for any system can be determined by reading the system wiring diagram," he said. "Troubleshooting any system goes a lot quicker and smoother when its sequence of operations is understood."

SAFETY FOCUS

Safety doesn't stop! Even with COVID-19 affecting so many parts of the economy, summer is still our busy season. Don't slack on safety and make sure you are controlling hazards on job sites. Make sure you, your co-workers and our subcontractors wear PPE, have the training they need (weekly Toolbox Talks) and maintain a clean and safe job site to help prevent injuries. Do regular site-inspections and prioritize OSHA's Big 4 hazards that can cause severe injuries and fatalities (SIF's).

OSHA'S BIG FOUR



Falls

- Wear and use personal fall arrest equipment
- Use guardrails and warning lines at 15 feet
- Cover and secure floor openings, label "hole"
- Use ladders and scaffolding safely
- Make sure all employees are trained on how to wear and use equipment



Struck-By

- Never position yourself between moving and fixed objects
- Wear high-visibility clothes near equipment and vehicles
- Discuss vehicle blind spots and safe walking paths on job sites



Caught In/Between (Cave-ins)

- Never enter an unprotected trench 5 feet or deeper
- Protect by sloping, shoring and shielding (trench box)



Electrocutions

- Locate utilities before starting work, underground and overhead
- Maintain safe distance from power lines (at least 10 ft)
- Be alert to electrical hazards when working on ladders, lifts or scaffolds
- Portable electric tools should be double insulated or grounded
- Use GFCI's

COVID-19

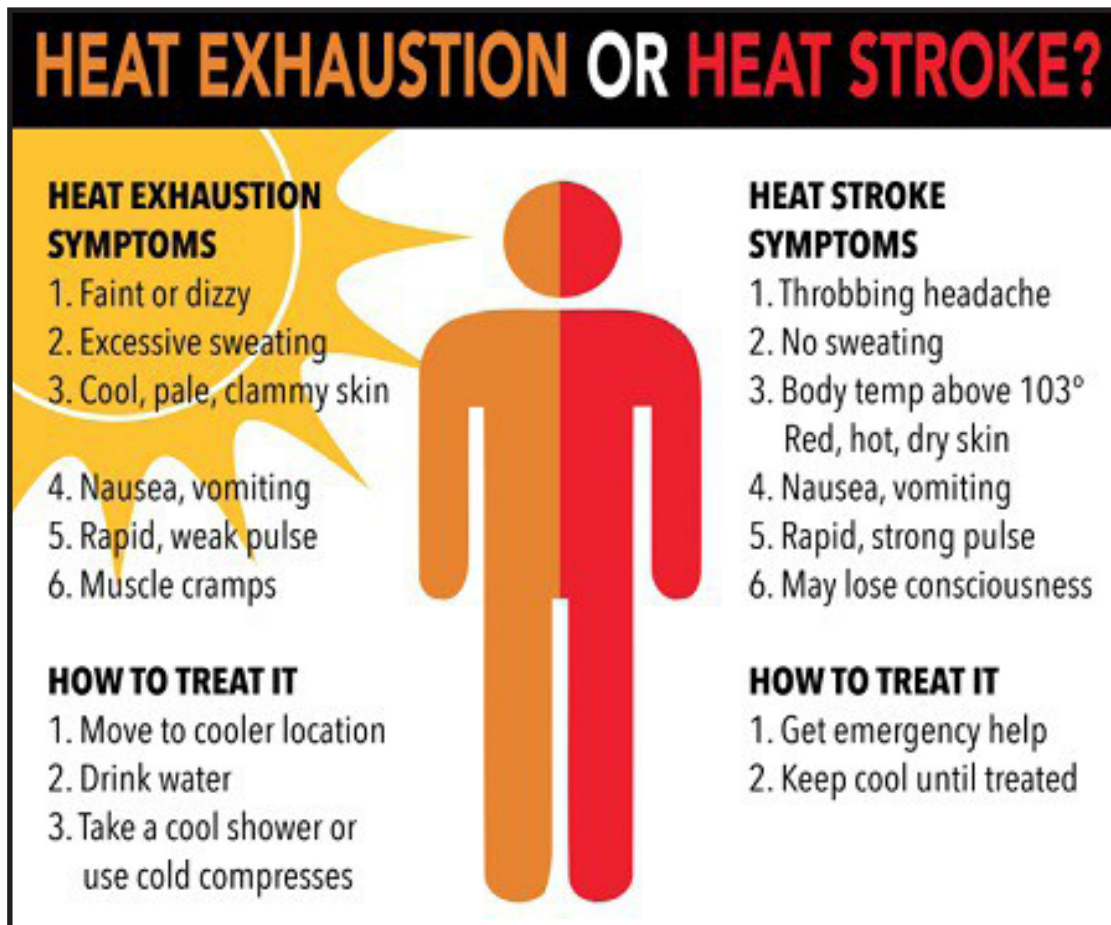
As more businesses begin to open, stay vigilant to prevent the spread of COVID-19. Maintain your distance from others, wear a face covering when close to others and wash your hands frequently. If you are sick, stay home!

SAFETY FOCUS

HEAT STRESS

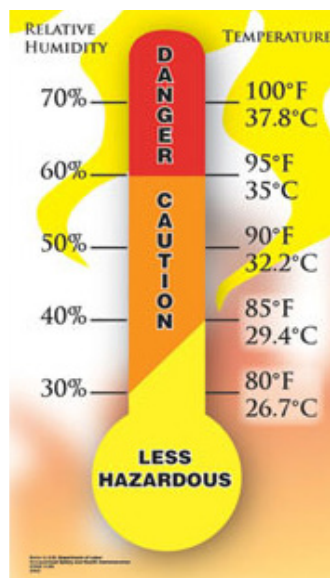
The days are getting hotter, increasing the risk of heat related illnesses. Remember to keep an eye on your co-workers for signs of heat stress, stay hydrated, seek shade, and increase airflow. Be aware of the temperature and relative humidity. High-humidity reduces evaporative cooling, and can cause heat illness at seemingly low temperatures.

HEAT EXHAUSTION OR HEAT STROKE?



HEAT EXHAUSTION SYMPTOMS	HEAT STROKE SYMPTOMS
1. Faint or dizzy	1. Throbbing headache
2. Excessive sweating	2. No sweating
3. Cool, pale, clammy skin	3. Body temp above 103° Red, hot, dry skin
4. Nausea, vomiting	4. Nausea, vomiting
5. Rapid, weak pulse	5. Rapid, strong pulse
6. Muscle cramps	6. May lose consciousness

HOW TO TREAT IT	HOW TO TREAT IT
1. Move to cooler location	1. Get emergency help
2. Drink water	2. Keep cool until treated
3. Take a cool shower or use cold compresses	





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Information needed for the referral:

- ◆ Customer Name
- ◆ Phone Number
- ◆ Email
- ◆ Day of Communication

Send information to
info@nac-hvac.com

Key Talking/Selling Points:

- ◆ **Independent study concluded 99.4% effective in killing COVID-19**
- ◆ Air filtration system captures large particles such as dust, dander, pollen by attaching ions around it, increasing the mass and size, therefore, making the capture rate more effective within your HVAC system
- ◆ Removes VOC's, odors, pathogens and ultra-fine particles from the air stream and kills viruses, mold spores and bacteria by eliminating the hydrogen from the pathogens
- ◆ Chemical, pet, cooking and other various odors are broken down into harmless compounds
- ◆ Significantly reduces the amount of outdoor air intake required resulting in up to 30% energy savings
- ◆ GPS can be installed in any air system in any building

NAC would recommend GPS for owners that are interested in preventing the spread of VOC's, viruses and odors in their supply airstream(s) and want a lower first cost solution when compared to UV lights and specialized filter solutions. The initial cost, install and maintenance requirements are attractive for this product considering the number of benefits that the product provides.

Products are readily available for installation in most units and can be ordered with quick ship options for large, custom air handling units.

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Any content suggestions for the next NAC newsletter?

Send to Melissa Goebel, Marketing Manager
mgoebel@nac-hvac.com