



Bodie Island

THE MAINTENANCE BEACON

The Monthly Newsletter of the North Carolina Public School Maintenance Association

Volume 56, Number 12
December 2019

CONTENTS

- Sanitation Rule Ammendment.....2
- Prevent Bullying.....3
- Exhibitor Pictures.....3
- Steam Basics.....5
- OSFM School Lockdown
- Fact Sheet.....6
- District 4 Scholarship Info.....8
- District 7 Scholarship Info.....9
- Jay Palmer Scholarship Info.....10

Merry Christmas

from the State Officers

Bergie Speaks - President

David Martin - Vice President

Cynthia McCabe - Secretary

Mark Letchworth - Liaison Officer

Meet KEVIN PERDUE



Kevin Perdue

Kevin Perdue is the Director of Operations for Vance County Schools (VCS). With 10 elementary schools, two middle schools and three high schools, VCS serves the education needs of approximately 6,200 students. Vance County

is located in the Piedmont region of North Carolina and is situated along the Virginia border. Kevin has lived in Henderson, the county seat of Vance County all his life - other than the years he spent at East Carolina University obtaining a degree in Business Administration.

Kevin has been employed in the VCS Maintenance Department for 20 years. He began his maintenance career as a plumber, he then became the Maintenance Supervisor, he moved up to the Director of Maintenance and currently serves as the Operations Director. He oversees the day to day operations of the Maintenance Department as well as the Transportation Department. Kevin enjoys his work. He said, "I like the challenges that are faced - as each provides its own opportunity to excel. Of course being able to 'roll with the punches' is important; you just never know what might happen at any given time. I try my best to be a good steward of tax dollars and make sure to get the most out of things." If you think about that, it's an arduous task. The maintenance budget is one of, if not the, largest school system budget.

Alisa Salmon, recently retired from VCS, worked with Kevin for 20 years. She said, "Kevin was the best boss that I ever had. He is extremely hard working and dedicated to his job - both as a maintenance and transportation director. I miss him so much but do stay in touch. He is always fun to be around and never

continued on page 2

MEETINGS & EVENTS

NCPSMA DISTRICT THREE MEETING

February 20, 2020 4pm at Weldon Middle School
4489 Hwy 301, Halifax, NC
For more information contact Sue Farmer at 252.399.7823

12TH ANNUAL NCPSMA WESTERN CONVENTION/WORKSHOP

June 3rd and 4th, 2020 at Johnson Spring, Lifeway
Ridgecrest Conference Center, Ridgecrest, NC
For more information contact Roxie Mack at
336.366.4939/roxiermack@gmail.com

48TH ANNUAL NCPSMA EASTERN CONVENTION/WORKSHOP

September 23rd-25th, 2020 at DoubleTree by Hilton,
Atlantic Beach, NC
For more information contact Roxie Mack at
336.366.4939/roxiermack@gmail.com

INDEX OF ADVERTISERS

ACR Supply Co	4
Atlantic Coastal Supply, Inc.	8
Carolina Courtworks	7
Davidson Sash & Door	2
D.H. Bruch Marketing, Inc.	2
Duro-Last Roofing	5
Floor Action	3
Hardware Distributors	5
Hoffman & Hoffman	8
Image Supply.	7
James M. Pleasants Co.	8
Ken Staley Co., Inc.	7
Lewis Boiler Supply	4
Loman Garrett	4
Matt Marshall & Co.	5
Reece, Noland & McElrath	8
Richard K. Hunter & Co.	2
Royalwood.	2
Saffelle, Inc.	5
Seven Oaks Doors & Hardware	8
Seven Oaks Supply Co.	4
Sky Enterprises	8
The Blind Butler.	5
WC Rouse.	3

MEETING DATES

The districts of NCPSMA meet twice yearly.

District 1

January, July

District 2

January, July

Pres. Ronald Moore

Phone: 910.296.1875

District 3

February, August

Pres. Greg Woodard

Phone: 252.399.7822

District 4

February, October

Pres. Cynthia McCabe

Phone: 910.678.2539

District 5

March, September

Pres. Justin Dyson

Phone: 336.909.2280

District 6

April, October

Pres. Chris Adkins

Phone: 980.343.4526

District 7

May, November

Pres. Raymond Bowles

Phone: 336.751.1991

District 8

March, November

Pres. Joe Buchanan

Phone: 828.456.2402

Meeting Dates & Locations

Should be sent to The Maintenance Beacon two months in advance for publication.

Deadlines

Publication deadline for articles and advertisements is first day of the month prior to month of publication.

KEVIN PERDUE

continued from page 1

complains about anything -he will make sure that the job gets done regardless." Chris Pulley, VCS Maintenance Supervisor said, "Kevin is very knowledgeable in all things maintenance related."

Kevin has been a member of NCPSSMA for 20 years. He has served as the District Three President. He attends the District Three Meetings when he can and enjoys the Eastern Convention. Kevin said, "NCPSSMA provides a great opportunity to learn from other colleagues and make connections with people whom have mutual interest. We're all doing basically the same things, so networking is a simple way to share good information with those who may have less experience. Being able to make friends from other districts has given me the opportunity to explore outside my own district, to get a feel for how things are done in other districts. Also, I have benefitted from some good advice. This past October I participated in the District Three Golf Tournament for the first time. I've thought about participating so many times over the years, but always seemed to have a reason not to. But this year I decided to get a team together and play. We didn't come close to winning, but we had a great time! I plan to try and recruit others to participate next year. From what I could tell, a good time was had by all." Kevin appreciates the training opportunities provided by NCPSSMA and would like to see more training offered. He said, "I hope the association can help with more training as the ability to find qualified trades people is very difficult these days. So when someone is hired without experience, training becomes even more important. Maybe an opportunity will arise for more retired people to kind of have the opportunity to give back some experience to our upcoming technicians."

If Kevin had more free time, he would spend it traveling. "I enjoy traveling as much as possible. I feel like traveling gives you new life as you are able to experience new places and things for the first time. Going to the beach is one of my favorites of course. Also, I love attending sporting events. I've been an East Carolina football season ticket holder since I graduated college, so I really enjoy attending those games in the fall as well as ECU baseball in the spring," he said.

Kevin and his wife Kelley have been married for almost 10 years. He has two stepdaughters. Emileigh, 16 and Taylor 14. Kevin said, "Boy, was helping Emileigh learn to drive over the last year interesting! Luckily, I have the ability to hold things in when things may look the worst, so I was able to calmly help correct things when necessary (those who've done this will understand). Thus, I was her favorite as I didn't scare her by 'freaking out' when riding with her. We'll see how well I retain those abilities as Taylor is soon to start Drivers Education."

Kevin's advice for difficult times is "Don't give up and quit during a tough time. Just because things look better somewhere else doesn't mean it will be. My dad told me a long time ago that a bird in the hand is better than two in the bush. It's easier sometimes to walk away from a tough situation but if you weather the storm, you'll be a better person for it."

By Roxie Mack,
NCPSSMA Executive Director

CHILD CARE SANITATION RULE AMMENDMENT

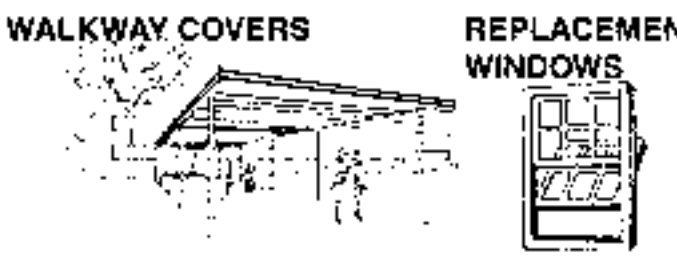
Important news! An amendment to Rule 15A NCAC 18A .2816 was adopted and approved with an October 1 effective date. This amendment requires that all licensed child care centers test all drinking water faucets and food preparation sinks for lead contamination within one year, and new centers must test upon application for a license. After that, centers will need to test once every three years.

In order to monitor compliance with the new requirement, child care operators will need to provide documentation of testing during periodic sanitation inspections for review by the local health department. The gradesheet will be modified to capture this information; however, no changes to the current inspection process will occur prior to October 1, 2020 except for new centers, which are required to test prior to licensure.

Fortunately, the Environmental Health Section anticipates receiving a grant from the U.S. Environmental Protection Agency to pay for the entire first round of testing. In order to take advantage of this funding, child care operators will need to wait until the grant has been awarded (anticipated this week), and a contract has been executed with a commercial laboratory to coordinate sample collection, analysis, and reporting.

continued on page 4

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NINE SOLUTIONS TO PREVENT SCHOOL BULLYING



In September, a 13-year-old male student in a California middle school died after a bullying attack by two classmates. Students and parents claim not enough has been done to address this issue at the school, which they say has been an ongoing problem.

Student bullying is a nationwide problem, and parents are demanding that school administrators re-evaluate their campus security protocols to keep all students safe. Indicators of School Crime and Safety 2018 from the National Center for Education Statistics (NCES) paints an ugly picture of bullying on U.S. K-12 campuses. About 20% of students ages 12-18 reported being bullied at school during the school year. Of the students who reported being bullied, 41% reported that they thought it would happen again. In 2017, of students who reported being bullied at school, 43% reported being bullied in the hallway or stairwell at school, 42% reported being bullied inside the classroom, 27% reported being bullied in the cafeteria and 12% in the bathroom or locker room.

Is there anything school administrators or parents can do to control this problem? There is, but it will take a real commitment to making a change.

As the former Executive Director of Security for Washington, D.C. Public Schools, I had 163 campuses, and I worked with school administrators, teachers, staff, parents, and students and conducted a comprehensive risk assessment of each campus to judge its security strengths and weaknesses. Then I could make specific plans for each campus to tackle problems such as bullying.

Here's what worked for us:

- 1. Admit You Have a Bullying Problem:** To begin with, educators need to admit the situation occurs on their campuses.

continued on page 4

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47TH ANNUAL NCPSSMA EASTERN CONVENTION/WORKSHOP EXHIBITOR PICTURES



MORE PHOTOS ON PAGE 7

CHILD CARE SANITATION RULE AMMENDMENT

If elevated concentrations of lead in water are reported, child care operators are required to take immediate action. Options include:

- No-cost methods, such as discontinuing use of the tap if sufficient drinking water faucets are available;
- Low-cost methods, such as replacing an old faucet with a new one; or
- Installing and maintaining a certified water filter on the tap.

If you have questions, please contact your Environmental Health Regional Specialist or Ed Norman at (919) 707-5951 or ed.norman@dhhs.nc.gov.

Information provided by Mark Letchworth, NCPSMA Liaison Officer

NINE SOLUTIONS TO PREVENT SCHOOL BULLYING

continued from page 3

2. **Provide Training to Teachers:** Teachers and staff will need training on how to spot bullying and how to handle situations when they arise.
3. **Work With Parents:** Schools must work with parents to help them understand that bullying is a severe problem and that they should talk with their children about it.
4. **Develop Student Awareness:** Similarly, students must be made more aware of the effects that this problem can have on their classmates.
5. **Install Security Cameras:** At our district, we needed cameras installed throughout the school district, especially in the hallways, near restrooms, inside the lunchroom, and on the playground – those areas where bullying was most likely to take place. Having direct evidence is important. It's been my experience that many parents insist their child would never bully another student. But when they are shown the video evidence, most promise to work with their child at home. The video also made it easier for us to enforce detentions and suspensions.
6. **Ban Bullies from Extracurricular Activities:** We also banned bullies from attending extracurricular events, such as dances and athletic games.
7. **Provide Adult Supervision:** Keep an adult — ideally a teacher or administrator — in the lunchroom during mealtimes, on the playgrounds during recess and in the hallways during passing periods. Most bullies are cowards and won't act up when they know they are being watched.
8. **Set Up an Anonymous Tip Line:** Have a tip line or other means of communications (text, online, etc.) that allow students, parents, teachers, campus staff and the community to anonymously report incidents.
9. **Empower Teachers:** Teachers have concerns that if they report bullying, they might face severe repercussions. There needs to be a mechanism for teachers to share information about incidents and concerns outside of the normal reporting structure.

Students Must Feel Safe So They Can Learn

There is no reason we should continue to have kids afraid to go to school and participate fully in events. It takes planning and the will to act, but bullying can be brought under control. It takes a lot of collaboration from all individuals. Overall, at my district we were able to reduce school incidents with our comprehensive security plan.

Patrick V. Fiel Sr. is a national security advisor who has over 40 years of experience managing security and law enforcement organizations. He can be reached at (910) 789-4265 or at pvfiel@gmail.com.

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STEAM BASICS

Part 17 Condensate Pump Discharge Balance Valves

This month, we'll look at the role the discharge balance valve plays in assuring long life in these pumps.

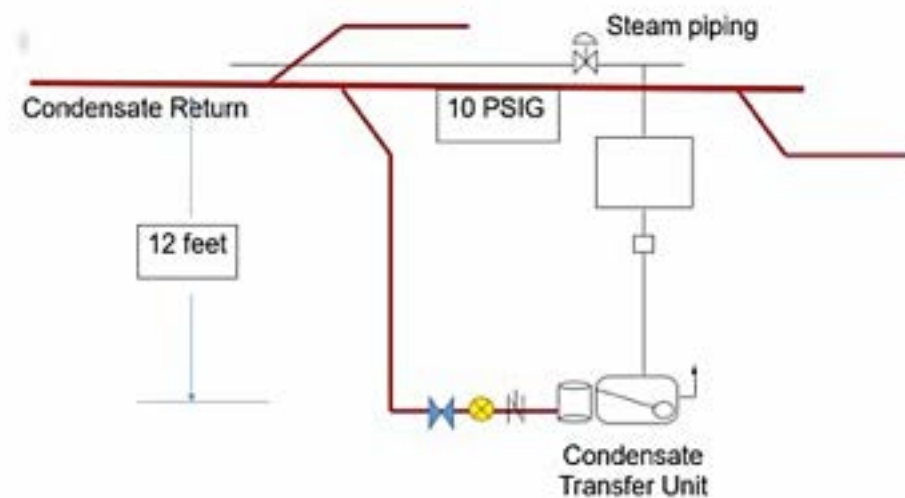
Condensate Temp. °F	200	204	206	208	210	212
Pump NPSH Available	7.5'	5.1'	4.0'	2.6'	1.4'	0'

The required NPSH of a pump varies with the flow through the pump. The flow is based on the system capacity and the receiver size selected. The pump head is normally expressed in PSIG and is the combination of friction loss, elevation or lift, maximum back pressure in the return header into which it is being pumped, and a safety factor, which includes some pipe corrosion allowance. When the pump is commissioned for a given flow rate, the friction loss is constant and the lift up to the main or tank is constant. The variability lies the back pressure and corrosion of the pipe over time. Why does this make a difference?

Condensate Pump Operation is Different than most Hydronic Pumps

The system curve for condensate pumps is much flatter than in most hydronic systems. Let's use an example to illustrate this.

In the example below, we assume the friction loss at 90 GPM is 14.5 feet or 6 PSIG. The elevation is shown as 12 feet or 5 PSIG. The engineer determined that the back pressure in the common return main could be 10 PSIG and the safety factor used is 5 PSIG. The pump will be selected for 90 GPM at 26 PSIG or 63 feet. Most condensate pump selections would round the number up to the nearest 5 PSIG but will assume the head is 63 feet.



The pump curve shown below requires only 2 foot NPSH at 90 GPM. The more expensive 2' NPSH pump was selected due to the 209°F return temperature expected. The 4.25" impeller would be used for our 63 feet of head. What happens when we start the pump? The safety factor and corrosion do not exist. The actual operation point would be at point 2, or about 110 GPM. The pump would require 4 feet of NPSH and would cavitate at temperatures above 206°F.

continued on page 6

THE MAINTENANCE BEACON

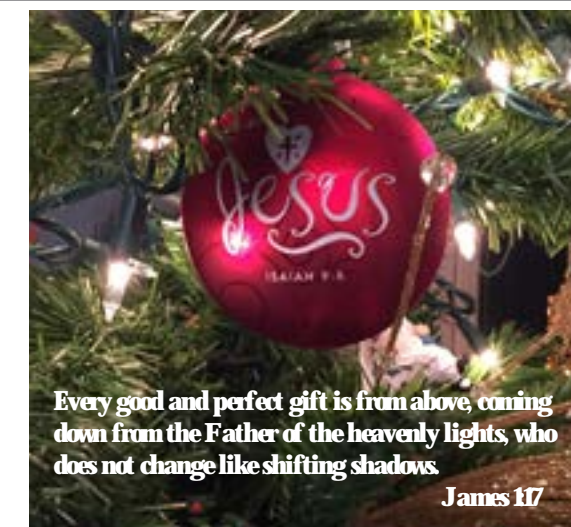
Executive Director: Roxie Mack
 Phone: 336.366.4939
 Fax: 336.366.4938
 E-Mail: roxiermack@gmail.com
 Website: www.ncpsma.org

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Every good and perfect gift is from above, coming down from the Father of the heavenly lights, who does not change like shifting shadows.

James 1:7



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OSFM SCHOOL LOCKDOWN FACTSHEET

Guidance for code officials, school districts, and governing officials. Contact your local Fire Code Official for Lockdown Plan details. Lockdown plans must be approved by the local fire code official. Review current and proposed changes to lockdown plans with the fire code official.

Lockdown Plan Contents:

- 2018 NC Fire Code
- 404.2.3.1 Lockdown plan contents. Lockdown plans shall be approved by the fire code official and shall include the following:
 1. Initiation. The plan shall include instructions for reporting an emergency that requires a lockdown.
 2. Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.
 3. Recall. The plan shall include a prearranged signal for returning to normal activity.
 4. Communication and coordination. The plan shall include an approved means of two-way communication between a central location and each secured area.
- 404.2.3.2 Training frequency. The training frequency shall be included in the lockdown plan. The lockdown drills shall not substitute for any of the fire and evacuation drills required in Section 405.2.
- 404.2.3.3 Lockdown notification. The method of notifying building occupants of a lockdown shall be included in the plan. The method of notification shall be separate and distinct from the fire alarm signal.

2018 NC Fire Code

SECTION 404 FIRE SAFETY, EVACUATION AND LOCKDOWN PLANS
Contains more details for development and drills. It is most important to develop a plan and practice it.

Alarm Requirements:

2018 NC Fire Code
907.2.3 Group E. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.
2. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.
3. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
 - 3.1. Interior corridors are protected by smoke detectors.
 - 3.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
 - 3.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
4. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:
 - 4.1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
 - 4.2. The emergency voice/alarm communication system will activate on sprinkler water flow.
 - 4.3. Manual activation is provided from a normally occupied location.

Manual Fire Alarm Box Options:

- Not required with automatic smoke detection/alarm system – Exception #3
- Not required in sprinklered building – Exception #4
- Install listed covers with horns on manual fire alarm boxes
- Local alarm signal pre-verification to constantly attended location (reception desk, resource officer, delay) (NFPA 72-2013 26.2.2) - Fire watch personnel

Access Control:

- Direct all visitors through a central entrance. - Metal detectors
- Card readers
- Video cameras
- Interlocks at entrances (reverse sallyport doors in sequence) - Security devices within rooms as part of the lockdown plan - Resource officers

2018 NC Fire Code

1010.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

2018 International Fire Code

1010.1.4.4 Locking arrangements in educational occupancies. In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room, where all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. The door shall be openable from within the room in accordance with Section 1010.1.9.
3. Modifications shall not be made to listed panic hardware, fire door hardware or door closers. 1010.1.4.4.1 Remote operation of locks. Remote operation of

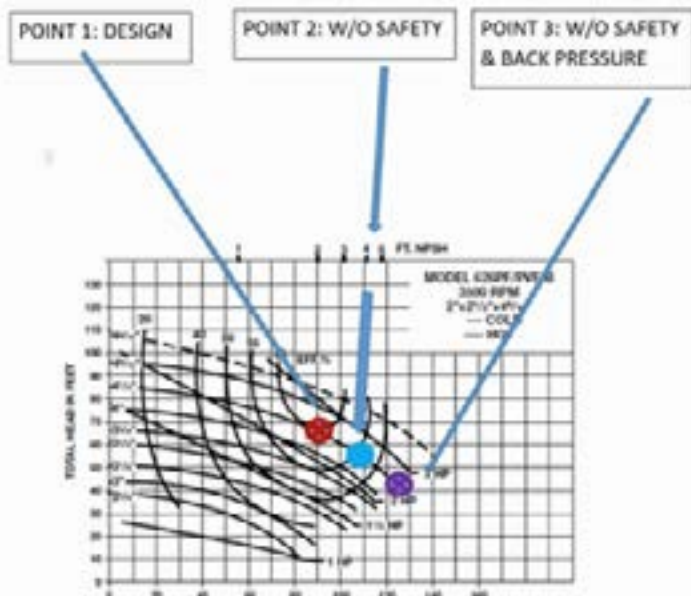
continued on page 9

STEAM BASICS

continued from page 5

The discharge balance valve MUST be throttled to impose more head and get the operation to 90 GPM at 63' head.

Does your balance valve specification call for the balancer to adjust the condensate pump flow rate?



The Hidden Problem & Solution

There is another issue. What happens when the 10 PSIG back pressure is not there? The pump will operate at point 3 some of the time. This will result in cavitation and the pump running off its curve. This pump will destroy itself unless we use a flow limiting balance valve. Now the valve is set to 90 GPM and opens and closes as pressures change in the system.

The solution is to install the flow limiting Bell and Gossett series AC or WV automatic flow limiter valve, depending on pipe size. Now it is automatically balanced. Simply add the following line to your Bell and Gossett Domestic brand condensate and boiler feed unit specification: "For each pump, manufacturer shall provide a Bell and Gossett series AC flow limiting balance valve for pipe through 2-1/2" and a Bell and Gossett series WV wafer style flow limiting balance valve for sizes 3" and over. Valve shall be preset to the GPM of the scheduled condensate return pumps."



FLOW LIMITING BALANCE VALVES

Proper condensate handling, proper pump selection, and proper installation together assure an excellent operating system.

Pump seal limitations for condensate pumps such as the Domestic CC, CB, and CBE style units are rated for 250°F. Since the receiver is vented, there is no concern about seal temperature for these Domestic models. However, there is concern that the pressure available at the pump suction will be able to keep this high-temperature water from flashing into steam. In general, the condensate pumps must have a low required net positive suction head (NPSHR) to handle the low pressure higher temperature condensate.

We recommend you read the Bell & Gossett article about NPSH and pump seals for more details.

continued on page 7

OSFM SCHOOL LOCKDOWN FACTSHEET

continued from page 6

locks complying with Section 1010.1.4.4 shall be permitted.

Other Thoughts:

- Incorporate security in new construction
- Protection of students in outdoor areas (athletic fields, playgrounds)

Other Resources:

- NFPA 3000 Standard for Preparedness and Response to Active Shooter and/or Hostile Events
<https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=3000>
- NCDOT Interpretation – Lockdown Hardware Operation
http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/Interpretations4/2012%20Fire%20Prevention/1008.1.9.5%20-%20Lockdown%20Hardware%20Operation.pdf

47TH ANNUAL NCPSMA EASTERN CONVENTION/WORKSHOP EXHIBITOR PICTURES

continued from page 3



Thanks to our exhibitors!

STEAM BASICS

continued from page 6

Condensate, Flash Steam, and Air
When the condensate from the heat exchanger passes through the Float and Thermostatic (F&T) trap to a vented dry condensate return, we know a percentage will flash to steam. This was mentioned in a previous blog. The dry return pipe was filled with air prior to the steam trap opening. Once the trap opens there is a mixture of condensate, flash steam, and air. The fact that there is a percentage of air mixing with the flash steam will result in a significant drop in temperature. There is also a BTUH loss through the pipe to atmosphere. Both of these act to reduce the water temperature before it enters the condensate unit.

continued on page 9



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DISTRICT FOUR SCHOLARSHIP REQUIREMENTS

Applicants must meet the following requirements:

1. NCPSMA District 4 current member and employee of the Maintenance Department of North Carolina Public Schools, or spouse of, or dependent child of
2. Financial Need / Academic Merit
3. Acceptance by college, university or technical school
4. Completed application. If application is not complete and accurate it will not be considered.

On a separate sheet please list applicant's extracurricular activities including, but not limited to academic, church, community, etc. Briefly convey in 250 - 500 words your hopes, wishes and desires along with why you chose the college or university you plan to attend.

Application must be postmarked by Monday, December 2, 2019 and mailed to: **Scholarship Chair District IV NCPSMA Scholarship Committee C/O Donna Fields 810 Gillespie Street Fayetteville, North Carolina 28306**

Scholarship(s) in the amount of \$500.00 will be awarded. Decisions for this year's scholarship will be made and awardees notified by Friday, December 13, 2019. Award will be sent to the educational institution in the student's name and account by Friday, December 20, 2019.

DISTRICT FOUR SCHOLARSHIP APPLICATION

A. Applicant
 Applicant's Name _____ Phone _____
 Address _____
 Date of Birth _____ Age _____ Social Security # _____
 Applicant Employer _____
 Approx. Salary _____ \$0-\$20,000 _____ \$20,001-\$30,000 _____ \$30,001-\$40,000 _____ \$40,000 +
 Current Member of NCPSMA _____ Yes _____ No
 **Please provide a copy of current membership card.

B. If Applicable
 Spouse _____
 Address (if different from applicant) _____
 Employer _____
 Approx Salary _____ \$0-\$20,000 _____ \$20,001-\$30,000 _____ \$30,001-\$40,000 _____ \$40,000 +
 Current Member of NCPSMA _____ Yes _____ No
 **Please provide a copy of current membership card.

C. Names / Addresses of Parents
 Father _____ Mother _____
 Address _____ Address _____
 Phone _____ Phone _____
 Employer _____ Employer _____
 Current Member of NCPSMA _____ yes _____ no Current Member of NCPSMA _____ yes _____ no
 **Please provide a copy of current membership card.

D. NCPSMA Member representing applicant if other than self or parents
 Name _____ Relation to applicant _____
 Employer _____ Current Member of NCPSMA _____ yes _____ no
 **Please provide a copy of current membership card.

E. If Applicant is a Dependant or Adopted Child:
 Parents' Combined Salaries _____ \$30,000 - \$40,000 _____ \$40,001 - \$50,000 _____ \$50,001 - \$60,000 _____ \$60,001 - \$70,000 _____ \$70,001 - \$80,000 _____ \$80,001 - \$90,000 _____ \$100,000 +

F. Please list other family members attending school / college, etc.
 Name Age _____
 Relationship College or School Year to Grad _____

G. Financial assistance applied for or received from all other sources: Source: _____

H. College Attending or Applied to and Accepted
 Amount: _____
 Name of College, University or Technical School _____
 Years Attended _____ Academic Year/Semester to Start _____ Student ID # _____
 Address of College or University: _____
 Address of where to submit proceeds (check will be made out to the student and the institution): _____
 **Please include a copy of acceptance letter

I. Extracurricular Activities:
 Include applicant's extracurricular activities including, but not limited to academic, church, athletic, community, arts, etc. Please list on a separate sheet.

J. Academic:
 Current GPA: _____ Class Rank: _____ of _____ or top _____ %
 Academic Honors: _____

K. Essay
 Briefly convey in 250 - 500 words on a separate sheet your hopes, wishes and desires for your academic and professional future, along with why you chose the College or University you plan to attend.
 NOTE: Please fill out the entire application completely and honestly. Incomplete applications will not be considered.
 Recipients will be announced and/or notified by the end of June each year. If awarded a scholarship, a check will be written to the university and mailed by the first week of August of the award year.
 Applications must be postmarked by Monday, December 2, 2019 and submitted to: **Scholarship Chair District IV NCPSMA Scholarship Committee C/O Donna Fields 810 Gillespie Street Fayetteville, North Carolina 28306 Phone: (910) 678-2571 Email: dfields@ccs.k12.nc.us**

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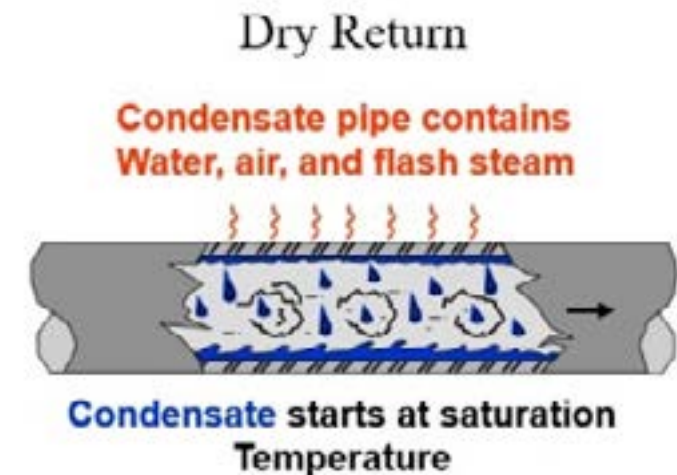
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STEAM BASICS

continued from page 7



The exact pump type required for the project may require specific information about the system; however, here are some general rules:

1. If the steam pressure to the heat exchanger is less than 10 PSIG use a Bell & Gossett Domestic series CC condensate unit rated for return temperatures between 200°F and 209°F.
 2. If the steam pressure to the heat exchanger is over 10 PSIG but less than 20 PSIG use a Bell & Gossett Domestic series CB condensate unit rated 2' NPSH for 210°F condensate.
 3. If the steam pressure to the heat exchanger control valve is over 20 PSIG use a Bell & Gossett Domestic series CBE (Elevated) condensate return unit rated 2' NPSH for 212°F condensate. This may also be an excellent application for a Kadant Johnson Liqui-Mover® pressure powered pumping unit sometimes called a pumping trap.
- Obviously, steam traps must be in good working condition and not leaking steam into the condensate system. In all cases remember if the condensate lifts into the receiver it must not lift above the heat exchanger steam trap.

Part 18 Selection of Medium and High Pressure Steam Flash Tank

Condensate flashes into steam in the return lines after the steam traps. When the steam pressure exceeds 15 PSIG and is defined as medium or high pressure, flash tanks are used to control where flashing occurs. The flash tank provides a "bubble" in the pipe with enough volume to allow the higher temperature condensate to flash into lower pressure steam. Flash tank outlets may be vented to atmosphere or may be isolated with a valve to capture the steam and reuse it in a lower pressure application.

In general, there are two types of steam flash tanks used in HVAC systems: horizontal and vertical.

Horizontal Condensate Flash Tanks
 Horizontal flash tanks are the more traditional style. They are designed and sized to give a required disengaging area. This area is the length times diameter of a horizontal tank and is coupled with the tank volume above the water level to vent dry flash steam. Dry flash steam is steam that is not carrying excessive amounts of condensate with the flash steam. The more PPH of condensate entering, the larger the tank. The higher the steam pressure (and thus the condensate temperature), the larger the tank. The lower the flash pressure and corresponding temperature, the larger tank.

continued on page 10

DISTRICT SEVEN SCHOLARSHIP REQUIREMENTS

Thank-you for your interest in the District Seven Scholarship. We will award a minimum of one scholarship in the amount of \$500.00 annually. The newest recipient will be named during the District Seven Meeting in May of 2020.

- Applicants must meet the following requirements:
1. NCPSMA District Seven current active, associate or retired member (minimum of one year) or their immediate family.
 2. Financial Need
 3. Acceptance by college, university or technical school
 4. Completed application. If application is not complete and accurate it will not be considered.

In addition to the completed application, on a separate sheet please list applicant's extracurricular activities including, but not limited to academic, church, community, etc.

Briefly convey in 300 words or less your hopes, wishes and desires along with why you chose the college or continuing education program you plan to attend.

Include copy of current membership card with application.

Application must be postmarked by March 12, 2020 and mailed to Tim Pruitt, C/O Wilkes County School Maintenance Department, 613 Cherry Street, North Wilkesboro, N.C. 28659

DISTRICT SEVEN SCHOLARSHIP APPLICATION

A. Applicant
 Applicants Name _____ Phone _____
 Address _____
 Date of Birth _____ Age _____ Social Security # _____
 Applicant Employer _____
 Approximate Salary _____ \$0-\$20,000 _____ \$20,001-\$30,000 _____ \$30,001-\$40,000 _____ \$40,000+
 High School Attending/Attended _____
 Year of Completion _____
 College Attending or Applied to and Accepted _____
 Years Attended _____ or Year to Begin _____

B. If Applicable
 Spouse _____
 Address (if different from applicant) _____
 Employer _____
 Work Phone Number _____
 Approximate Salary _____ \$0-\$20,000 _____ \$20,001-\$30,000 _____ \$30,001-\$40,000 _____ \$40,000+
 Current Member of NCPSMA _____ YES _____ NO If YES, how long have you been a member _____

C. Parent(s) of Applicant if Dependant Child or Adopted Child
 Name of Father _____
 Address _____
 Home Phone _____ Work Phone _____
 Employer _____
 Current Member of NCPSMA _____ YES _____ NO If YES, how long have you been a member? _____
 Name of Mother _____
 Address _____
 Home Phone _____ Work Phone _____
 Employer _____
 Current Member of NCPSMA _____ YES _____ NO If YES, how long have you been a member? _____
 Parents Combined Salaries _____ \$0-\$40,000 _____ \$40,001-\$60,000 _____ \$60,001-\$80,000 _____ \$80,000+

D. NCPSMA Member representing applicant if other then self or parent
 Name _____ Relation to Applicant _____
 Employer _____
 Current Member of NCPSMA _____ YES _____ NO If YES, how long have you been a member _____

E. Please list other family members attending school/college, etc
 Name _____ College or School _____ Year to Graduate _____ Age _____

F. Finance assistance applied for or received from other sources
 Application must be postmarked by March 12, 2020 and mailed to Tim Pruitt, C/O Wilkes County School Maintenance Department, 613 Cherry Street, North Wilkesboro, NC 28659

JAY PALMER SCHOLARSHIP APPLICATION

A. APPLICANT INFORMATION:

Full Name _____
 *Address _____
 City _____ State _____ Zip _____
 Phone (____) _____
 *E-mail address _____
 Date of Birth _____ Age _____ Social Security # _____
 Applicant Employer _____
 Approximate Salary:
 _____ 0-\$10,000 _____ \$10,001-\$20,000 _____ \$20,001-\$30,000
 _____ \$30,001-\$40,000 _____ \$40,000-above
 Current Member of NCPSSMA ___ yes* ___ no District # _____
 *Please include a copy of current NCPSSMA membership card with completed application.

Note: if applicant is employed by an LEA Maintenance Department and Active member of NCPSSMA, Item C. is not required.

B. APPLICANT SPOUSE INFORMATION (If applicable):

Full Name _____
 Address _____
 City _____ State _____ Zip _____
 Applicant Spouse Employer _____
 Work Phone Number _____
 Approximate Salary:
 _____ 0-\$10,000 _____ \$10,001-\$20,000 _____ \$20,001-\$30,000
 _____ \$30,001-\$40,000 _____ \$40,000-above

C. APPLICANT'S PARENT INFORMATION:

Father _____ Mother _____
 Address _____ Address _____
 City _____ City _____
 State _____ State _____
 Zip _____ Zip _____
 Employer _____ Employer _____
 Work Phone _____ Work Phone _____
 Home Phone _____ Home Phone _____
 Father E-mail address _____
 Mother E-mail address _____
 Current Member of NCPSSMA ___ yes* ___ no * District # _____

*Please include a copy of current NCPSSMA membership card with completed application.

D. If applicant is a Dependent Child or Adopted Child, Parents Salaries (combined)

_____ \$30,000-\$40,000 _____ \$40,001-\$50,000 _____ \$50,001-\$60,000
 _____ \$60,001-\$70,000 _____ \$70,001-\$80,000 _____ \$80,001-\$90,000
 _____ \$90,001-\$100,000 _____ \$100,001 and over

E. Please list other family members (siblings, parents, spouse, etc.) attending school/college

Name & Relationship _____
 School/College _____
 Expected Graduation Date _____
 Age _____

F. High School Applicant Attended/Attends

Year of Completion _____
 G. College Attending or Applied to and Accepted _____
 Years Attended _____ Year to Begin _____ *Student ID# _____
 Address* of college or university/accepted to _____

*Where to send the check made out to the institution and applicant.
 *Include a copy of original acceptance letter from university.

H. List other sources of Financial Assistance _____

I. *On a separate sheet, list applicant's extracurricular activities including, but not limited to academic, church, community, etc.

J. *Briefly convey in 200-500 words on a separate sheet your hopes, wishes and desires for your academic and professional future, along with why you chose the college you plan to attend. Please fill out completely and honestly.

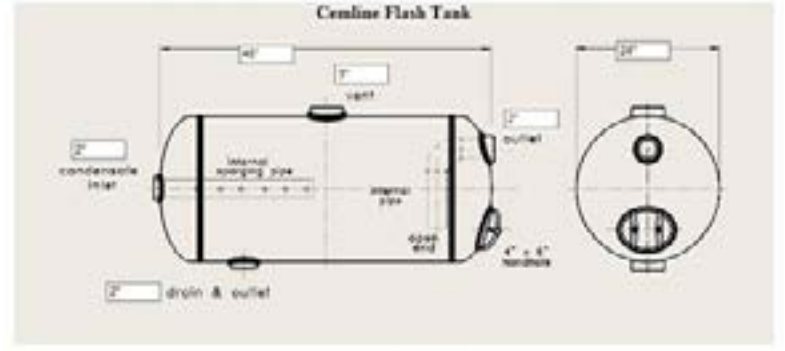
K. PLEASE Include information with a * we need complete applications!

Incomplete applications will not be considered.

Recipients will be announced or notified by the end of June each year. If awarded scholarship, check will be written to the school and applicant, mailed on or about the first week of August of award year.

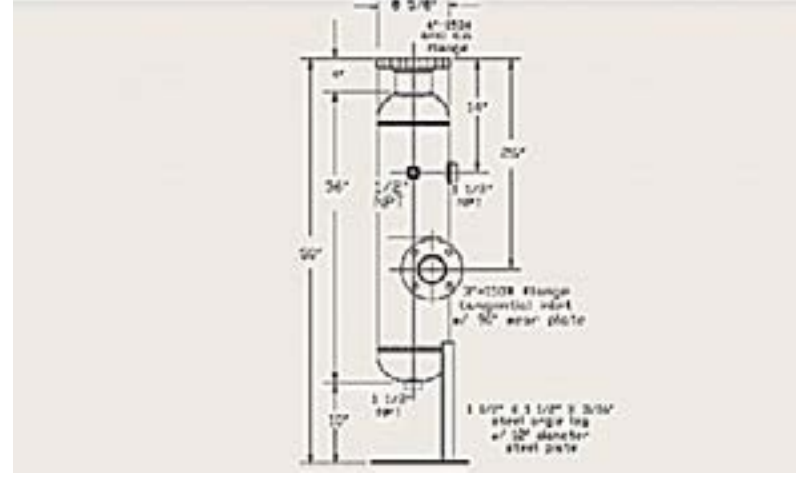
STEAM BASICS

continued on page 4



Vertical Condensate Flash Tanks

Vertical flash tanks use a different principle. Vertical flash tanks use tangential openings and “spin” the condensate around the diameter of the tank. Flash steam is lighter than the water, so it moves to the inside and is vented up while the condensate moves down. This is the same operating principle of air separators that use tangential openings and centrifugal force to actively remove air from the water. Vertical tanks that are



Celine Corporation, a manufacturer of ASME flash tanks, has an online sizing program in which users input the key values and the program generates the correct tank size and opening sizes and provides CAD ready drawings. Here's a screenshot of what that program looks like:



By Chad Edmondson (JMP) and Norman Hall (RLD)
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 in the city of David a

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which is

CHRIST the LORD

Luke 2:11

