THE MAINTENANCE BEACON

The Monthly Newsletter of the North Carolina Public School Maintenance Association

Volume 58, Number 10
October 2021

Contents

School Security 3
Roxie Off Road 4
Obituary 5
District Three Golf Tournament Registration Form 7

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. Mark Letchworth
Phone: 252.399.7822
District 4
February, October
Pres. Donna Fields
Phone: 910.678.2565
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
V. Pres. Jason Kelly
Phone: 828.456.2402

Meeting Dates & Locations
Should be sent to The Maintenance Beacon two months in advance for publication.

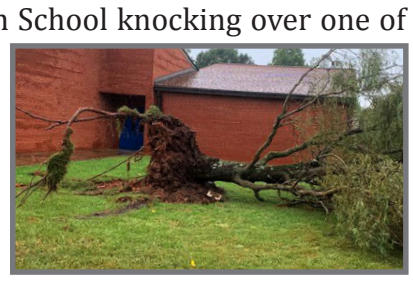
Deadlines
Publication deadline for articles and advertisements is first day of the month prior to month of publication.

MESSAGE FROM THE PRESIDENT

Just when we thought 2020 was rough.

This fall has been difficult in Wilkes. With the issues that most everyone is faced with due to the COVID pandemic such as not being able to get products, materials, and some services like we could before, it has made the start of school extremely difficult. Parts for HVAC units, roofing materials, furniture, you name it. It has been a struggle to supply the needs of our system.

Other factors that have played a huge role in the struggle of having things ready for students have been a string of both natural and unnatural events. Let me explain, July 31st a truck ran off the road and hit the school sign at East Wilkes High School knocking over one of the brick columns. On August 12th, we had hard wind and rain in the western end of the county. It took one tree down in the courtyard and a huge limb out of an oak tree which fell on a teacher's car. On Tuesday, August 17th, I got a call from Mr. Chris Campbell saying, "A tornado just left



continued on page 3

WSHP SYSTEM DESIGN

PART ONE: HOW TO CALCULATE OUTSIDE AIR

By Chad Edmondson

In our previous series, *Introduction to Water Source Heat Pump Systems,* we covered the advantages, operation, and piping design options for a system that utilizes water source heat pumps (WSHPs). Now it's time to dig into the overall mechanical design – including what it takes to deliver a fully functioning system that not only provides fully conditioned air to the interior spaces but also ensures a healthy indoor environment. That means planning for intake of outside air.

All buildings must have a strategy for delivery of fresh, filtered outside air into the interior spaces. Fresh air helps dilute indoor pollutants (carbon dioxide, allergens, etc.) which can increase allergic reactions and asthma, as well as exacerbate the spread of viral diseases from coughing and sneezing. Insufficient fresh air in interior space adversely affects student and worker performance, increases absenteeism, and reduces productivity. But how does one determine how much outside air or ventilation air is required for a given building?

The prescriptive paths are laid out in detail in *ANSI/ ASHRAE Standard 62.1, Ventilation for Acceptable*

continued on page 6

Meetings and Events

DISTRICT THREE ANNUAL GOLF TOURNAMENT

October 29, 2021 • Rain Date November 5, 2021
Shotgun start at 1:00 PM • Wedgewood Golf Course, Wilson NC
For more information please contact Sue Farmer
252.399.7823 or sue.farmer@wilsonschoolsnc.net

INDEX OF ADVERTISERS

ACI Systems 5
ACR Supply Co 4
Atlantic Coastal Supply, Inc. 7
Davidson Sash & Door 3
D.H. Bruch Marketing, Inc. 3
Duro-Last Roofing 6
Floor Action 4
Green Air Environmental 4
Hardware Distributors 5
Hoffman & Hoffman 7
James M. Pleasants Co. 7
Ken Staley Co., Inc. 7
Lewis Boiler Supply 6
Loman Garrett 4
Matt Marshall & Co. 5
Pinnacle Dryer Corp. 5
Reece, Noland & McElrath 7
Richard K. Hunter & Co. 3
Royalwood 3
Saffelle, Inc. 6
Seating Safety Solutions 4
Seven Oaks Doors & Hardware 7
Seven Oaks Supply Co. 5
Sky Enterprises 7
The Blind Butler/Premier Drapery 4
The Cook & Boardman Group 2
WC Rouse 4

FLORIDA DISTRICT BOLSTERS SCHOOL SECURITY WITH GUNSHOT DETECTION

By Patrick Fiel

As schools continue battling the COIVD-19 pandemic, they must not overlook the security of their students, staff, and visitors. Even with thousands of K-12 campuses partially or entirely closed earlier this year, school shootings occurred at a record pace. What will happen once they all reopen?

School and law enforcement officials in Aventura, Fla., a planned, suburban community 17 miles north of Miami, aren't taking chances. They are hardening their campuses with some of the latest technology aimed at improving response to active shooters.

Aventura operates two charter schools, K-8 and high school campuses with more than 1,600 students, faculty and staff, as part of the Miami-Dade School District, the nation's fourth largest K-12 school district.

continued on page 3

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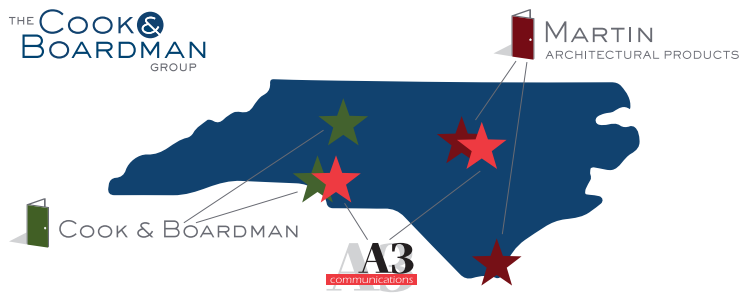

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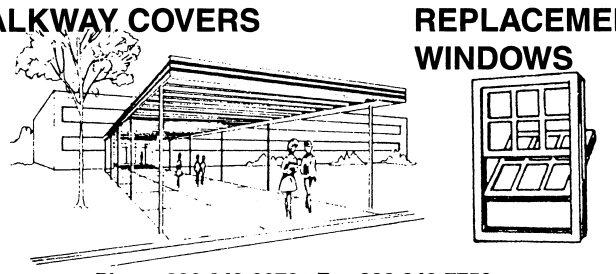
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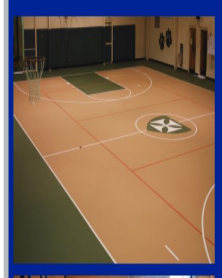

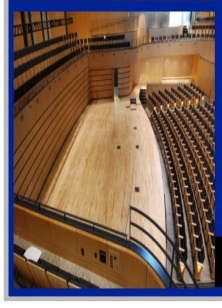
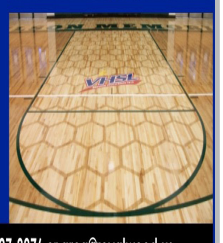
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MESSAGE FROM THE PRESIDENT

continued from page 1

Alexander County and is headed your way." Luckily, we did not have any damage from that storm but another one came from Iredell County the 'same day' and took the tops out of some trees at Ronda Clingman Elementary School. On August 19th, we had extremely hard rains which caused a sinkhole to form beside a drain at East Wilkes High School football field and another one at West Wilkes High School between the main drive and student parking.

Sinkhole

Sinkhole

Fortunately, school did start on August 23 in Wilkes County and both students and staff had what they needed to begin the school year. No, they didn't have everything we had ordered and not all the HVAC units were running but they had what they needed. We are currently still dealing with the sinkholes and sign damage but regardless, we are operational and glad to have the students of Wilkes County back in the classrooms.

I know other counties across the state have been devastated by extreme weather events and recently two school shootings in NC. My thoughts and prayers go out to everyone dealing with such tragic and devastating events. Even though we've had strange things happen in Wilkes County, they don't begin to compare with what many others have or are facing right now. Please reach out if there is anything the NCPSMA can do as an organization or I can do as an individual. Through this organization, many have become like family. For those I don't know or have yet to meet, please know you and your school system are in my thoughts and prayers as well. We must stand together and help one another through times like these. You are not alone; you do have someone you can call on. Again, please don't hesitate to reach out if there is anything we can do. I appreciate each and every one of you!

Sincerely,
Bergie Speaks, NCPSMA State President

FLORIDA DISTRICT BOLSTERS SCHOOL SECURITY WITH GUNSHOT DETECTION

continued from page 1

What sparked Aventura's latest security upgrades was one of the nation's most deadly school shootings only 40 miles to the north in Parkland. In 2018, a lone gunman killed 17 students and staff members and wounded 17 more at Marjory Stoneman Douglas High School. Almost immediately, Aventura officials began a review of their security systems and protocols.

The K-8 campus and the high school, which opened about a year later, already had access control, video surveillance and intrusion systems in place or planned. Following the Parkland mass shooting, Aventura added more cameras and security screens, new protocols were prepared and the schools started campus-wide drills specifically addressing an active shooter situation.

Aventura Police Chief Bryan Pegues wanted one final piece for the security plan – a gunshot detection system capable of quickly and accurately identifying the location of shots fired on either campus. The system uses finely tuned sensors that listen for the acoustic properties of a gunshot and, in less than two seconds, provide police with alerts showing where, within 1 meter, the shots were fired.

The system works both outside and indoors with sensors placed in critical areas on each floor of the buildings and a breezeway connecting the two campuses. Each sensor includes four acoustic "detectors" that don't listen for voices but filter for the sound of gunfire and can pinpoint the exact shooter location. The unobtrusive sensors resemble a Wi-Fi extender.

Once a shot is detected, police receive a notification along with surveillance video taken seconds before and after the gunshot. Police dispatchers share the data via smartphone with full-time, dedicated school resource officers (SROs) on each campus and other department officers. A browser-based app displays real-time shot reports, including digital floorplans, shooter photos, shot trajectory and weapon caliber. The completely automated system activates lockdown protocols, reduces response times, and enables better coordination between school officials and the police.

Chief Pegues said before and after the system was installed, his staff tested the system to the "maximum." "We simulated multiple shots on different floors of each building," he said. "The system provided excellent performance and we learned we had the bandwidth to handle the worst of real-world situations. We received no false positive alarms after using the systems for more than two years."

Anthony Tyrkala, K-8 principal of the Aventura City of Excellence School, said no one comes to school each day anticipating a campus shooting.

continued on page 5

ROXIE OFF ROAD

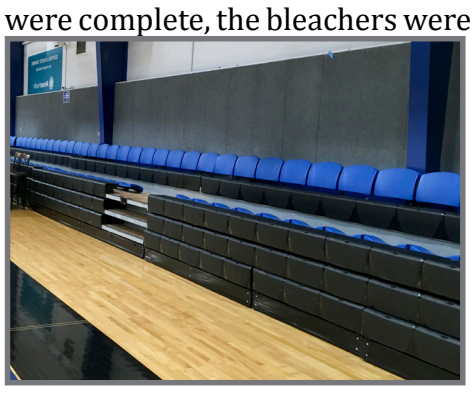
Material for The Maintenance Beacon has been slim – more so than usual. I asked some of our vendors for articles. Several have taken time to send in an article. They will be placed in "Roxie Off Road" in the order they were received. We appreciate our vendors so much! The first article is by Sarah Darnell with Seating Safety Solutions.

Bleacher Renovation Versus Replacement

After years of wear and tear, the decision to replace bleachers may have to be made, however there is another option that could be more beneficial and budget friendly than replacement. Renovating and upgrading existing bleachers extends the lifespan of the bleachers while ensuring they are safe to use and operate. This custom solution is fitted to each case and provides the necessary steps to meet budgets and safety requirements.

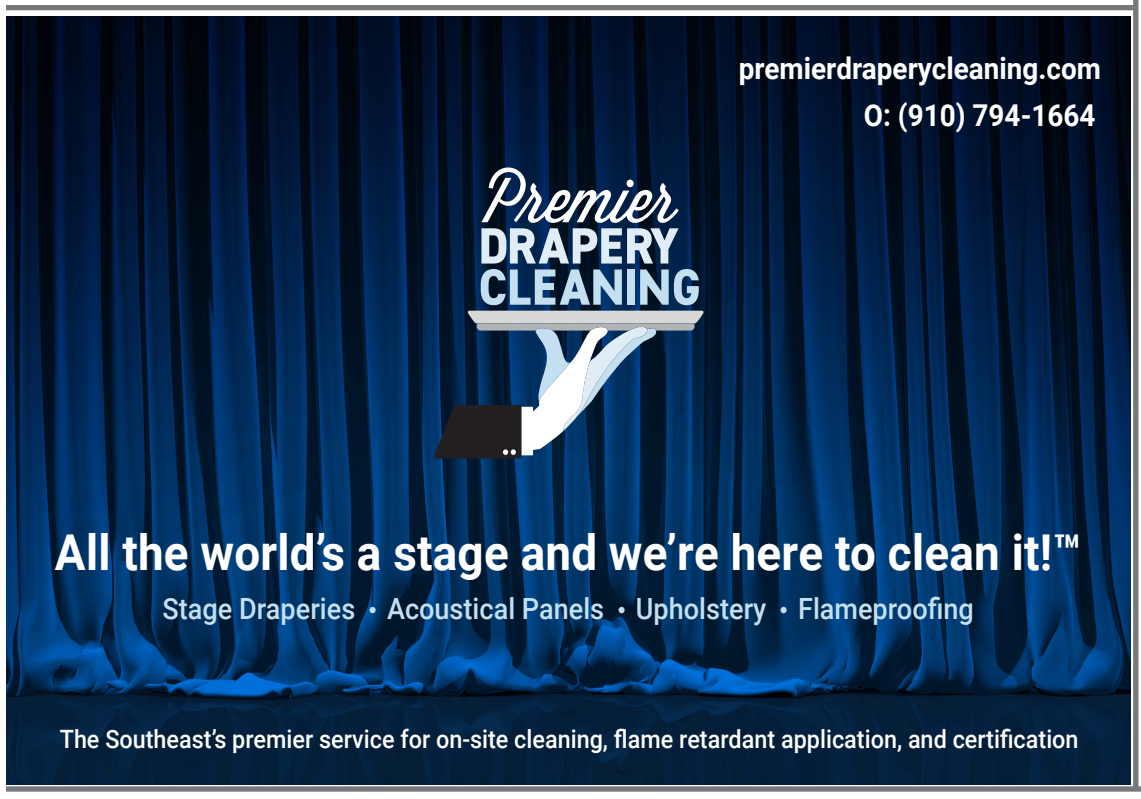
In a recently completed job at Charlotte Christian School, we worked with the maintenance director to determine the needs of the school and discussed the available options in regard to the existing bleachers. They decided that the best option for their budget and long term use of the bleachers was to proceed with renovating their existing bleachers. Many upgrades are available for older models of bleachers, as well as various manufacturers. For example; seat upgrades, motorizing manual bleachers, and adding code compliant features such as end rails, aisle rails, steps, and ADA seating. It is important to fix these issues before they cause damage or cause other parts to fail.

In order to get the bleachers back into safe, working operation, repairs needed to be made. The bleachers were not opening as smoothly as they should. After replacing damaged flex row pins, we were able to adjust the decks and replace missing rollers to allow proper operation. We also replaced all tier catches, as they were either broken or bent. Once these repairs were complete, the bleachers were able to be operated as originally designed, without danger of injury to the user.



After the repairs were made to the under structure, we removed the old MVP seats, and installed new Hussey 10" Court side seats. The hardware in the existing backs was modified to work with the new Hussey Seating 10" Courtside seats. The new Hussey MAXAM Courtside seats in black give the bleachers a much newer and more modern look without having to replace the entire set. Additionally, the old wooden skirt boards were replaced with new metal skirt boards and new operating handles, completing the "new" appearance and functionality.

By Sarah Darnell
Account Manager Seating Safety Solutions
336.622.1678



OBITUARY

Bobby Crawford Coggins, 72, of Charlotte, died unexpectedly at his home on August 23, 2021. Bobby was born in Charlotte on August 17, 1949, the son of Fred and Vinnie Leigh Wilson Coggins. He grew up in Charlotte and graduated from Harding High School. When his country called on him for service, he answered that call and enlisted in the United States Army. He was subsequently discharged honorably and returned to Charlotte. He met and married Ms. Donna Green and together they were blessed with four children: Matthew, Hannah, Jacob and Rebecca. In 1995, Donna passed away from cancer and preceded him in death. His friends, helping him through this time, kept him active and would take him out. While at Boppers on Albemarle Road, the group Bobby went with ran into another group that included the Ms. Jeanne Cumbie, herself recently single. They danced, he gave her his card, they went on a follow up date, and in 1997, they were married, adding three more children to those he was blessed to call his kids.

continued on page 6

FLORIDA DISTRICT BOLSTERS SCHOOL SECURITY WITH GUNSHOT DETECTION

continued from page 3

"This is not what our teachers signed up for, but it is now part of our world, part of our reality," he said. "But we've taken steps to prevent a tragedy or at least minimize the impact of any event."

To date, the system has been used only for frequent tests and not for a real active shooter. "Nothing is more important to me than the safety of our students and staff," said Tyrkala. "We know we have a system in place that will identify not only a shooting but also support in the response. It was a no-brainer for us."

Reprinted by Permission/Patrick V. Fiel Sr.
Patrick V. Fiel Sr. is a national security advisor who is working with Databuoy Corporation, the maker of Shotpoint, an acoustic gunshot detection and localization system. He has worked with thousands of schools providing security services and solutions. He can be reached at (910) 789- 4265 or at pvfiel@gmail.com.

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Fax: 336.366.4938
E-Mail: roxiermack@gmail.com
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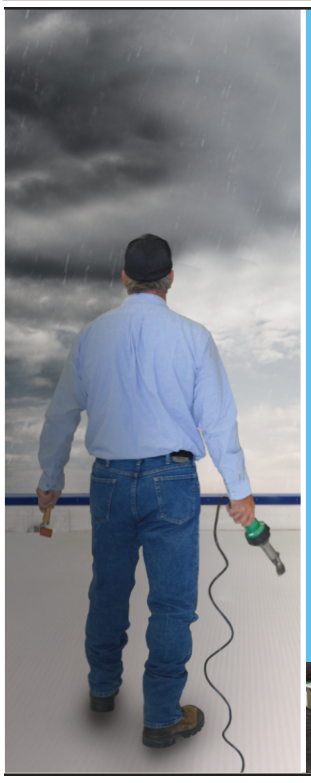
OBITUARY

continued from page 5

Bobby was blessed with the talent of using his hands, he owned and operated his own painting business, Coggins Painting, and he also worked for eleven years as a painter for Charlotte Mecklenburg School System before his retirement. When not working, he enjoyed many things including soccer. Most of all, Bobby walked his faith, and he spent much of his time tending to the less fortunate around him. Whether feeding the hungry or sheltering the homeless, Bobby's faith shown brightly in his love for his fellow man and his ability to witness to anyone, anywhere. He was truly a father to all of his children and set an amazing example of what love, acceptance and respect (without raising your voice) meant. He was also very proud to call family all of his fellow worshippers at Riverlife Fellowship in Mooresville.

Bobby is survived by his wife, Jeanne; his children: Matthew Coggins, Hannah (husband Francisco) Rodriguez; Jacob (wife Mandy) Coggins; Rebecca Coggins; all of Charlotte, and Beth Tucker of Lexington, NC; Tami Helms of Senoia, GA; and Joe Helms of Midland, NC; fifteen grandchildren: Levi, Lillie, Katie, Ronnie, Emma, Holly, Alex, Jax, Iris, Roam, Rose, Pearl, Caleb, Ryder and Grant; and nine great grandchildren. He is further survived by two siblings: Wesley Coggins of Belmont and Wreatha Gilcrist of Bryson City, TN; as well as numerous other relatives and friends. In addition to his first wife and his parents, he was preceded in death by six siblings: Bill, Clyde, Fred, Eddie, Frances and Wanda.

Services were held at Riverlife Fellowship on Thursday, August 26, 2021.



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WSHP SYSTEM DESIGN

PART ONE: HOW TO CALCULATE OUTSIDE AIR

continued from page 1

Indoor Air Quality, found here; however, since most of us learn better by example, let's say we have the following office building:

Building Example for Calculating Outside Air	
Building Type	Office
Building Size	45,000 sq ft
Interior Spaces/sq ft	Office Space – 43,000 sq ft Breakroom – 2,000 sq ft
Location	Charleston, SC
Occupancy	225

ANSI/ASHRAE Standard 62.1 gives three procedural options for determining the minimum outdoor (OA) airflow rate, (1) Ventilation rate procedure (VRP), (2) the indoor air quality procedure (IAQP), or (3) the natural ventilation procedure (NVP). Here in the Southeast, because of the added humidity, we generally apply the VRP or IAQP procedure. In this example we are going to use the VRP procedure.

Using the VRP procedure, the first thing we must do is consult the Minimum Ventilation Rates in Breathing Zone table in Standard 62.1 to find the CFM per person required in an office space and breakroom space. ASHRAE tells us for an office building that we require 5 CFM of outdoor air per person. Next, we have to look at the size of our building and determine how much CFM we need for the area. Per ASHRAE, our office building that it is 0.06 cfm/ft2 for office space and 0.12 cfm/ft2 of break room.

The complete table (Table 6-1) detailing the minimum "People Outdoor Air Rate" and "Area Outdoor Air Rate" for all different types of buildings can be found in Standard 61.2. We've included a portion of Table 6-1 below for our example:

Table 6-1 Minimum Ventilation Rates in Breathing Zone (Continued)

Occupancy Category	People Outdoor Air Rate R_p cfm/person	People Outdoor Air Rate R_p L/s·person	Area Outdoor Air Rate R_a cfm/ft²	Area Outdoor Air Rate R_a L/s·m²	Default Values Occupant Density #/1000 ft² or #/100 m²	Air Class	OS (6.2.6.1.4)
Miscellaneous Spaces (continued)							
Sorting, packing, light assembly	7.5	3.8	0.12	0.6	7	2	
Telephone closets	—	—	0.00	0.0	—	1	
Transportation waiting	7.5	3.8	0.06	0.3	100	1	✓
Warehouses	10	5	0.06	0.3	—	2	
Office Buildings							
Breakrooms	5	2.5	0.12	0.6	50	1	
Main entry lobbies	5	2.5	0.06	0.3	10	1	✓
Occupiable storage rooms for dry materials	5	2.5	0.06	0.3	2	1	
Office space	5	2.5	0.06	0.3	5	1	✓
Reception areas	5	2.5	0.06	0.3	30	1	✓
Telephone/data entry	5	2.5	0.06	0.3	60	1	✓
Outpatient Health Care Facilities [a,b]							

The equation for determining the required outdoor air flow in a given breathing zone of an occupiable space is as follows:

$$V_{bz} = R_p \times P_z + R_a \times A_z$$

Where,

A_z = zone floor area, the net occupiable floor area of the ventilation zone, ft^2

P_z = zone population, the number of people in the ventilation zone during use

R_p = outdoor airflow rate required per person as determined from Table 6-1

R_a = outdoor airflow rate required per unit area as determined from Table 6-1

V_{bz} = (5 cfm x 225) + (0.12 cfm/ft^2 x 2000 ft^2) + (0.06 cfm/ft^2 x 43000 ft^2)

= 3945 CFM Total Required Outside Air

Obviously, the calculation gets a bit more complex depending on types of spaces and occupancies in a building, but you get the idea. Be sure to also check Standard 61.2, Section 6.2 for any exceptions that might apply to your building type.

continued on page 7

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DISTRICT THREE GT REGISTRATION FORM

NCPSMA ANNUAL GOLF TOURNAMENT
SUPERBALL TOURNAMENT

DATE: October 29, 2021

RAIN DATE: November 5, 2021
PLACE: Wedgewood Golf Course
3201 Old Stantonsburg Road, Wilson, NC

Entry Fee $50.00 per person
$200.00 per team
(THIS INCLUDES: GREEN FEE, CART & LUNCH)

Please make checks payable to: NCPSMA DISTRICT III

REGISTRATION FORM and PAYMENT FOR HOLE SPONSORSHIP AND TEAMS ARE DUE BY OCTOBER 15, 2021

IF PAYMENT IS NOT RECEIVED BY THIS DATE, YOU CANNOT PARTICIPATE

LUNCH AT NOON

Shotgun start at 1:00 PM

Prizes Include:	Hole Sponsorship:
Low Score	$100.00 per hole
Closest To Pin (MAX) 2	Mulligan's: $5.00 Each
Longest Drive	

COMPLETE:

Team Name: _____

Team Players Names: _____

Address: _____

School Unit or Company: _____

RETURN TO:

Wilson County Schools – Maintenance Department PO Box 3878, Wilson, NC 27895
Attention: Sue Farmer-Golf Tournament • Phone – 252-399-7823 • Fax – 252-243-7197

WSHP SYSTEM DESIGN

PART ONE: HOW TO CALCULATE OUTSIDE AIR

continued from page 6

Now that you know how to calculate the outside airflow rate, next up we'll discuss how to deliver that outside air to the building and why it may require conditioning prior to entering the space.

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