

Horry County Board of Education

Facilities Committee



Facilities Committee Meeting Minutes Monday, February 18, 2019

Board Members Present:

Neil James, Facilities Committee Chairman
Janet Graham, Facilities Committee Member
Holly Heniford, Facilities Committee Member
Helen Smith, Facilities Committee Member
Sherrie Todd, Facilities Committee Member
Ray Winters, Facilities Committee Member

Ken Richardson, Board Chairman
Shanda Allen
Chris Hardwick
Janice Morreale

Staff Members Present:

Dr. Rick Maxey, Superintendent
Velna Allen
Mary Anderson
Lisa Bourcier
Daryl Brown
Joe Burch
John Gardner

Kenneth Generette
Leann Hill
Mark Koll
Dennis McCrary
Boone Myrick
Mark Wolfe

Media Present:

Patrick Lloyd, WMBF
Nick Papantonis, WPDE
Katie Powell, Horry Independent
Chris Spiker, WBTW
David Weissman, The Sun News

As required by SC Law 30-4-80, local news media were informed of the date, time, place, and agenda of this meeting. Copies of the agenda were posted at the District Office and distributed to schools for posting.

Review and Approval of Agenda

Mr. Winters moved to approve the agenda as presented. Mrs. Todd seconded the motion. All voted in favor of approving the agenda. Motion passed.

Review and Approval of Minutes

Mr. Winters moved to accept the minutes of January 28, 2019, as presented. Ms. Heniford seconded the motion; all voted in favor. Motion passed.

Discussion

St. James Elementary School Indoor Air Quality

Mr. Brown updated the Committee on recent indoor air quality issues at St. James Elementary School. He noted that Palmetto EHS has been at the school on four separate occasions (November 30, 2018, January 21, 2019, February 10, 2019, and February 18, 2019) to conduct air sampling and surface sampling of certain rooms identified by administration and staff. After each visit, Palmetto EHS submitted a report which included cleaning recommendations. Staff has complied with each recommendation.

Mr. Brown then read an excerpt from the status report on St. James Elementary School provided by Colleen Eubanks of Palmetto EHS. (*Attached*)

Dr. Maxey then shared with the Committee the letter he sent to the South Carolina Department of Health and Environmental Control (DHEC), and their response. In his letter dated February 11, 2019, Dr. Maxey emphasized that Horry County Schools is committed to the safety and health of our staff and students and never would staff or students be put in harm's way. He detailed the efforts to address the indoor air quality concerns raised by staff and parents, and invited DHEC staff to visit the school at their convenience. In the response from DHEC, dated February 13, 2019, Ms. Myra Reece, Director of Environmental Affairs, noted that while DHEC does not have the regulatory authority or technical expertise to address indoor air or mold concerns, the actions taken by Horry County Schools are recognized as appropriate actions in the EPA guidelines.

Dr. Maxey added that HCS has drawn upon the expertise of an eminently qualified professional in Colleen Eubanks of Palmetto EHS, to conduct the indoor air quality and sample testing of St. James Elementary School. He listed several of the degrees and certifications that Ms. Eubanks holds, and her experiences that relate to this scope of work.

Dr. Maxey reiterated that Horry County Schools is very concerned about the safety, health, and well-being of all employees and students. He noted that all of Palmetto EHS's prescribed treatments for the affected areas were followed in a timely and thorough manner. Mrs. Smith asked if other follow-up measures have been arranged. Dr. Maxey answered that the Procurement Department is currently working on an indoor air quality solicitation which will secure a firm to address any future issues. Currently, Palmetto EHS has been used on a consultant basis. He added that each time a concern is identified, it has been addressed promptly.

Mr. James clarified that the solicitation is for an ongoing service that would address concerns at any school. Dr. Maxey confirmed that once the firm selected, they would be contacted for indoor air quality concerns at any school.

Mrs. Smith asked if the area rugs in elementary schools pose a problem, and if that concern has been addressed. Dr. Maxey answered that the use of an area rug, which can often harbor microbes from foot traffic is commonly used in elementary schools. Staff is exploring options to address this, such as a more rigorous cleaning schedule. Mrs. Smith responded that investing in rugs with a washable surface should be considered.

Mr. James asked Mr. Brown if the conditions that he mentioned as a cause for the issues have been fixed. Mr. Brown answered that yes, many schools have aging roofs, and it is a priority to fix any problems as quickly as possible. Mr. James then asked if there were any other schools with issues that need to be addressed proactively. Mr. Wolfe answered that concerns with roofs

are promptly brought to the Facilities Committee and the Board to ensure they are addressed immediately.

Mr. Richardson cautioned that social media does not capture the full story of all that staff has done to address concerns. He added that his recent visit to St. James Elementary School was enlightening as he saw many of the concerns had already been addressed. Mr. James added that the safety and health of students are always a priority.

Appointment of Selection Committee Members of the HCEC Architectural Services RFQ

Mr. Wolfe updated the Committee on the Request for Qualifications (RFQ) that the full Board had authorized which will secure an architect for the new Horry County Education Center, noting that the former RFQ had been cancelled. He noted that the RFQ was released February 12th, with responses due by March 12th. In anticipation of the responses, staff would like to secure the Facilities Committee Chairman's appointments of five board members to the 10-member selection committee, in accordance with Board Governance.

Mrs. Todd, Ms. Heniford, Mrs. Graham, Mrs. Smith, and Mr. Winters were appointed to the selection committee. Mr. James agreed to be the alternate for the committee, should the need arise.

Naming of E Field in Myrtle Beach

Mr. Generette distributed a map of the baseball field area of Myrtle Beach High School and reviewed the policy regarding the naming of adjunct facilities. Mrs. Todd asked that the Committee consider allowing field "E" to be renamed to the Lawrence Jones Memorial Field. She explained that Mr. Jones, who had been a valuable part of Myrtle Beach athlete's lives since 1972, had passed away recently.

Mr. James asked if the Myrtle Beach Advisory Board was aware of the request. Mrs. Todd answered that it is an agenda item for the meeting scheduled later in the week. Mr. James asked that it be added to the next Board agenda following the Advisory Board Meeting. Mrs. Smith added that Mr. Jones was a wonderful man and deserving of this honor.

Conway Tennis Courts Update

Mr. James reminded the Committee of prior conversations regarding the proposed shared-use tennis courts in Conway.

Mr. Wolfe stated that he had spoken with Mr. James, the principal of Conway High School for his input. Mr. James is open to a partnership with the City, but had many questions regarding the details. Mr. Wolfe noted that the RFQ for sports design is nearing completion and as such, consideration would need to be given to concerns such as the timing, cost analysis between a joint-use project or an individual project, upkeep cost sharing, transportation from the school, scheduling of events, and safety and security.

Mr. Burch advised the Committee on a recent conversation with Adam Emrick, the City Manager of Conway. Mr. Emrick indicated that the topic may be discussed at the City's upcoming budget retreat, and that the City is waiting to see what insurance funds may be available to rebuild the facility. He also added that he hopes to have the work done over the summer.

Mr. Burch noted that this may be a viable option to help both entities. Mr. James asked if the courts would be clay or a hard surface as required by the South Carolina High School League. Mr. Burch answered that the decision on a surface has not been made yet.

Mrs. Graham noted that clay surface courts are costly, and may not be where the City is heading. She asked if the agreement between HCS and the City of Myrtle Beach for shared-use athletic facilities could be duplicated in Conway. Mr. Wolfe answered that the agreement would be similar, with a major difference being that the Myrtle Beach facilities are located on the campus of Myrtle Beach High.

Mr. James asked if direction is needed from the Committee to have staff continue to explore this option. Mr. Wolfe answered that direction is needed so that staff may engage with the City in discussions regarding needs.

Mr. Richardson raised the issue of memberships, noting that the clay-surfaced courts are more appealing to much of the membership population, especially seniors. If the surface is hard, many will not renew their memberships, which may be a revenue consideration for the City. Mr. Burch added that the City is considering factors such as membership.

Mrs. Smith asked for clarification on the timing of the RFQ. Mr. Wolfe stated that if a fee agreement can be reached quickly, then the timing should coincide well with the City's plans. It was noted that the high school currently uses the City's tennis courts that are located at Collins Park.

Mrs. Graham moved to allow staff to explore the opportunity to share the construction and maintenance of tennis courts with the City of Conway. Mrs. Todd seconded the motion. All voted in favor of approving the motion, Motion passed.

Aynor High School Wetland Analysis

Mr. Burch displayed an aerial photo of the Aynor High School property which was recently analyzed for wetlands. Specifically, he drew the Committee's attention to the two fairly large areas of wetland on the site. He noted that "wetland 1" is on property owned by Horry County, and "wetland 2" is on HCS property but is not conducive to the construction of a practice field. He added that the permit process to mitigate wetlands would be lengthy, costly, and requiring of many site studies such as a biological study.

Mr. James stated that the hope was that the analysis would return a viable option for a practice field. Mrs. Allen asked if the results would have been different if the analysis was done after a dryer season. Mr. Burch answered that the determination is based on ground auger samples, vegetation, and water tables. He added that there are some unique features to that property with large areas draining through it. He said that he would check with the consultants to see if the recent wet season may have impacted the results. He added that these maps have not been delineated yet by the Army Corps of Engineers.

Mrs. Smith added that Socastee High School also had very wet conditions, with the practice field being partially flooded after Hurricane Florence.

2019-2020 School Year Modular Classroom Discussion

Mr. Wolfe reviewed the 2019-20 needs for modular classrooms based on recommendations from the Executive Directors over elementary, middle, and high schools, along with projections for next year's enrollments. St. James High School has requested 6 classrooms. Mr. James asked for clarification on their need since their capacity is at 99%. Mr. Burch explained that high schools capacity calculations are factored based on an 85% utilization rate. This takes into consideration the fact that a classroom is not utilized 100% of the time because of the block schedule and a teacher's planning period. In the case of St. James High School, there are

several floating teachers, and a new special education class which will require a room inside the building. Ms. Morreale noted that the allocations for next year warrant 4 units. The request for 6 was made since the enrollment is expected to continue to grow, units come in pairs, and installation costs are a factor.

Mrs. Smith asked if the portables were movable. Mr. Wolfe answered that the portables are movable and noted that the units that went to SJHS moved from Midland Elementary School. Mrs. Todd stated that it was her wish that every teacher in Horry County could have a classroom. She acknowledged that it hinders a teacher's abilities when they are floating teachers.

Mr. Wolfe noted that the leased modulars at Myrtle Beach Primary will cost about \$495,000 to purchase and move to a new location. However, new modular purchases would cost only about \$30,000 more and are more compatible with others recently purchased, meaning they can be moved and joined with others at different campuses in the future.

Mr. James asked about the capacity change at Aynor Middle School. Mr. Burch answered that the former computer classrooms are now being factored into capacity numbers. Mrs. Allen requested copies of correspondence regarding the modular classroom needs of Aynor Middle School.

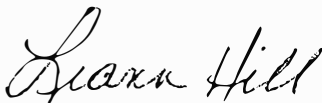
Mr. Wolfe explained that Ocean Bay Elementary School has requested 6 modular units. The School is currently over capacity and is projected to grow by an additional 60 students.

Mr. James stated that he will move the purchase of 6 modular units for both St. James High School and Ocean Bay Elementary School forward to the full Board so that the units can be ordered by the end of March.

Adjourn

Ms. Heniford moved to adjourn, seconded by Mrs. Graham; all voted in favor. Motion passed.

Respectfully submitted,



Leann Hill
Administrative Asst. – Support Services

Attachments

Approved: March 18, 2019



February 11, 2019

VIA E-MAIL AND U.S. REGULAR MAIL

Jennifer Read, Chief of Staff
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Dear Ms. Read:

Horry County Schools (HCS) is committed to the safety and health of our staff and students. We also believe relationships with our stakeholders are critical to the success of our schools' learning environments. With those thoughts in mind, I would like to make you aware of recent concerns raised about indoor air quality by employees and parents at St. James Elementary School, located in the Myrtle Beach area. As a result of these complaints, the District contracted with Palmetto EHS, LLC, an environmental, health, and safety consulting firm to perform air quality tests on selected rooms on November 30, 2018, and comprehensive air quality tests on January 21, 2019, taking over 80 plus samples throughout the school building.

Out of all the areas tested on January 21, 2019, 23 areas within the school had minor amounts of mold spores detected that were not identified in the outdoor environment; however, in a few areas, the mold spore counts were amplified. Palmetto EHS, LLC, recommended various levels of cleaning by location. As a result, HCS hired Full Steam Ahead, Inc., a fire, water, mold restoration company to perform the cleaning in the 23 identified areas, while HCS maintenance staff did the cleaning in the remaining areas and replaced ceiling tiles per the recommendations of Palmetto EHS, LLC. Cleaning included rugs, carpets, wiping and cleaning of walls, surfaces, furniture, desks, etc., and the placement of HEPA scrubbers in multiple areas. HCS also hired Tri-Dem Filter Corporation to replace the HVAC systems' air filters with new filters.

The District provided parents and staff members with the two full indoor air quality reports produced by Palmetto EHS, LLC. Further, a comprehensive notification was sent to all St. James Elementary School parents on Friday, February 8, 2019, regarding a re-cap of events, how and where the air quality tests were performed, and the results from the tests along with the recommendations received from Palmetto EHS, LLC. The District also included general information about mold, mold guidelines/regulations, cleaning agents used, attendance, and make-up school work, rumors and misinformation, and next steps. A St. James Elementary staff meeting called by the District was also held on February 8, 2019, and this same information was

shared with the employees. Multiple District-level staff attended, as well as HCS Board Member Janice Morreale, Colleen and Gary Eubanks from Palmetto EHS, LLC, and Steve Kahn and Mike Millen from Full Steam Ahead, Inc.

Palmetto EHS, LLC, performed a re-test of the 23 previously identified areas on Sunday, February 10, 2019, as well as 10 additional areas based upon comments received during the District's meeting with the St. James Elementary School staff members. Additional cleaning and ceiling tile replacement took place over this past weekend to include running HEPA scrubbers in four classrooms. We anticipate receiving feedback from Palmetto EHS, LLC, within 7-10 calendar days and, if needed, will develop another action plan. This new information, along with the full report, also will be shared with parents and staff. If additional recommendations are reported, HCS will once again expedite any identified corrective measures.

To assist with summarizing these events, I have attached a timeline of events, a copy of the two air quality reports from Palmetto EHS, LLC, as well as a letter from Full Steam Ahead, Inc., regarding the cleaning agents used by their company. I am also attaching a copy of the most recent parent notification which includes a copy of the two air quality reports submitted by Palmetto EHS, LLC. As you can see, we have made the indoor air quality of St. James Elementary School a priority, and we will continue to expedite any identified corrective measures regarding indoor air quality by utilizing qualified outside resources and appropriate HCS maintenance staff.

I am requesting that the South Carolina Department of Health and Environmental Control review the information that I have provided with this letter and ask that you offer any additional guidance, recommendations, or suggestions, if any are deemed necessary, which you believe we should follow to address these concerns. If you or a staff member would like to visit St. James Elementary School to get a first-hand look at the facility, we will be glad to work with you to schedule a date and time for your visit.

Thank you again for your time and guidance on this very important matter.

Sincerely,



Rick Maxey, Ph.D.
Superintendent

Attachments

c: W. Marshall Taylor, Jr., Acting Director, SCDHEC
Horry County Board of Education



February 13, 2019

Rick Maxey, Ph.D.
Superintendent
Horry County Schools
P.O. Box 260005
Conway, SC 29526

Dear Dr. Maxey:

Thank you for your letter of February 11, 2019, making us aware of the recent concerns raised about indoor air quality by employees and parents at St. James Elementary School. The reports and attachments you provided were forwarded to me.

DHEC does not have the regulatory authority or technical expertise to address indoor air or mold concerns. When contacted by the public with indoor air concerns, we refer them to the EPA's Indoor Air Quality webpage. This webpage contains many resources to help answer questions regarding indoor air and mold and also provides remediation guidelines.

From the reports and correspondence you have provided, it appears that the school district has invested significant time and resources to address this issue and the concerns of the parents and teachers. The air quality testing, cleaning, implementation of corrective measures and remediation, are all recognized as appropriate actions in the EPA guidelines. Following the guidelines that EPA has provided is the best recommendation that we can provide.

Sincerely,

Myra C. Reece
Director of Environmental Affairs



Palmetto EHS
www.PalmettoEHS.com

Safety • Industrial Hygiene • OSHA Compliance • Training

February 15, 2019

Horry County Schools
335 Four Mile Rd.
Conway, SC 29528

Attention: Horry County School Board

Reference: Update on St. James Elementary School for School Board Meeting on 2/18/19

Dear Horry County School Board Members:

The following is an update of indoor air quality testing activities performed by Palmetto EHS, LLC (Palmetto EHS) at St. James Elementary School in Myrtle Beach, SC as of 2/15/19 as well as our recommendations which have been provided to date.

Status Report

The following is a timeline of events of Palmetto EHS's involvement in testing activities at St. James Elementary School in Myrtle Beach, SC:

- Palmetto EHS performed mold spore trap sampling of 6 rooms at St. James Elementary School on November 30, 2018. No surface swab samples were collected because mold was not observed on surfaces at the time of this visit in these 6 rooms. Our report number 2018376 was issued on December 4, 2018.
 - In the report we stated that 5 of the 6 rooms tested had certain mold spore types present in higher levels than outdoors, although the total mold count for each room was well below outdoor levels.
 - We recommend a cleaning protocol for the five rooms including cleaning of all surfaces with an antimicrobial cleaning agent, cleaning HVAC supply diffusers and return vents, replacement of HVAC filters and the optional use of HEPA filtered scrubbers to more quickly lower mold spore counts in these rooms.
- Palmetto EHS performed follow-up mold spore trap testing of the 5 rooms that had been cleaned as well as an additional 77 rooms selected by Horry County School District at St. James Elementary School on January 21, 2019. Five surface swabs were also collected on the following surfaces: three dirty supply diffusers, one binder with staining on it, and on efflorescence on a concrete block wall. Our report number 2019015 was issued on January 29, 2019.
 - Three of the 82 rooms had mold spore counts greater than outdoor levels. An additional 20 rooms had certain mold spore types present in higher levels than outdoors, although the total mold count for each room was well below outdoor levels. The remaining 59 rooms had mold spore counts well below outdoor levels for all types present, so no recommendations were provided for these 59 rooms.

Palmetto EHS, LLC | 100 Old Cherokee Rd. Suite F, Box 163
Lexington, SC 29072
803.462.4404 (Phone)
803.462.4408 (Fax)

- The surface swabs collected on the binder and the three supply diffusers were positive for mold. The surface swab collected on efflorescence on the concrete block wall was negative for mold spores.
- We recommended a cleaning protocol for 20 of these 23 rooms including including cleaning of all surfaces with an antimicrobial cleaning agent, cleaning HVAC supply diffusers and return vents, replacement of HVAC filters and the optional use of HEPA filtered scrubbers to more quickly lower mold spore counts in the rooms. For three of the rooms (P102, P103, and P105), we recommended the use of HEPA vacuums and that HEPA scrubbers be used for a 2-3 day period to lower the spore count in the rooms. We also recommended follow-up air testing for these three rooms.
- On Friday, February 8, 2019, Palmetto EHS attended a meeting of staff members at St. James Elementary School at the request of Horry County School District and answered questions regarding our report dated January 29, 2019. For staff concerned about mold spore exposure, we recommended consultation with their personal physician for employees who may have specific mold allergies.
- On Sunday, February 10, 2019, Palmetto EHS returned to the school to re-sample the 23 rooms identified in our January 29, 2019 report as well as an additional 10 rooms that were added on at the request of St. James Elementary staff members. We did not perform surface testing for mold during this visit because we did not observe mold on surfaces in any of these 33 rooms. Our report number 2019049 was issued on February 13, 2019.
 - Of the 33 rooms tested, only 2 required additional cleaning (E100 and the Reading Room). The other 31 rooms had mold spore counts well below outdoor levels for all types present, so no further action was recommended for any of these 31 rooms.
 - We recommend a cleaning protocol for E100 and the Reading Room including including removal of all fabrics, rugs, and unnecessary cardboard boxes, cleaning of all surfaces with an antimicrobial cleaning agent, cleaning HVAC supply diffusers and return vents, replacement of HVAC filters at the conclusion of the cleaning, the use of HEPA vacuums, and use of HEPA scrubbers for a 2-3 day period to lower the spore count in the rooms (two scrubbers in E100, and one in the Reading Room). We also recommended follow-up air testing for these two rooms. We recommend that the rooms remain unoccupied until they are re-tested to ensure that spores do not re-enter the rooms during the cleaning process via shoes and clothing.
- Upon approval by Horry County School District, Palmetto EHS will re-test E100 and the Reading Room on Monday, February 18, 2019 following additional cleaning and use of HEPA scrubbers over the weekend.

Discussion

It is important to understand that mold is everywhere. We encounter mold spores on a daily basis both indoors and outdoors. Mold spores enter buildings through windows and doors, on shoes and clothing as we walk in and out, and on our pets. Most of the time, mold spores are removed through cleaning. When water damaged building materials are present, mold can begin to grow.

The two most common ways to test for mold are air sampling and surface sampling. We conducted both types at St. James Elementary as needed. We collected spore trap air samples

in each of the sampling events, but we only collected surface swab samples on our January 29, 2019 visit because we observed staining on items and wanted to confirm the presence or absence of mold on those items. It is not typical to collect surface samples for mold on surfaces without visible evidence of mold or water staining. When the industrial hygienist needs to determine the presence of mold where staining is not present, air samples are much more useful, as they provide more information.

The total mold spore count in most of the rooms sampled at St. James Elementary was lower than outdoors, meaning that you have more exposure to mold spores in the parking lot than inside these classrooms. A few classrooms had slightly higher levels of mold spores, but still lower than what you would typically find outdoors in the summertime. We did observe several water stained ceiling tiles, dirty supply diffusers, and many area rugs in classrooms, and these are conditions that may lead to mold growth or mold spore accumulation.

Because the most likely source of the amplified mold at St. James Elementary was water intrusion (from roof leaks and/or HVAC condensation on piping above the ceiling tiles) and accumulation of mold spores over time in area rugs, we provided the following recommendations for St. James Elementary that will assist in preventing future accumulation of indoor mold spores and indoor mold growth:

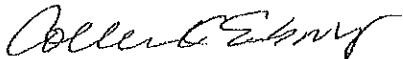
1. When stained ceiling tiles are observed by staff, they should be immediately reported. The tiles should be removed by appropriate District personnel and corrective actions should be made if a roof leak or HVAC condensation is observed once ceiling tiles are removed. Prompt corrective action will prevent mold growth.
2. To reduce the accumulation of mold spores that are brought in on shoes, either discontinue the use of all area rugs in the school or institute a cleaning schedule for these rugs. Area rugs can harbor many allergens including, but not limited to mold spores.

Closing

We appreciate the opportunity to provide this information for your review and hope that you find it helpful.

Sincerely,

Palmetto EHS, LLC



Colleen Eubanks, CIH, CSP, CET
President



Palmetto EHS

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Fax: 803.462.4408

Colleen@PalmettoEHS.com

Colleen K. Eubanks, CIH, CSP, CET

Experience Founded Palmetto EHS in 2010 with fifteen years previous EHS experience. Former OSHA compliance officer with expertise in OSHA compliance; industrial hygiene; indoor air quality, mold assessment and remediation procedures; occupational safety and health training; and workers' compensation loss control. Authorized as OSHA Outreach Trainer to teach OSHA 10 and 30-Hour Courses for General Industry and Construction.

Palmetto EHS is a family-owned safety and health consulting firm located in Lexington, SC providing the following services:

Chemical & Noise Sampling	Job Safety Analysis	Mock OSHA Audits
Ergonomic Assessments	Safety Culture Analysis	Custom Safety Training
Indoor Air Quality	ISNet World Compliance	Online OSHA Training
Small Business Safety Program Support	Safety Program Development & Implementation	Respirator Fit Testing and Medical Clearance

Education BS, Environmental Health Science, Western Carolina University 1994
Master of Public Health, Industrial Hygiene, University of South Carolina, 2001

Professional Certifications

Certified Industrial Hygienist (Comprehensive Practice) #8488, 2003
Certified Safety Professional #17156, 2002
Certified Environmental Trainer #13018, 2013

Example Consulting Projects

Safety and OSHA Consulting

- Safety and health consultant for Starbucks Roasting Facility. Provide safety, industrial hygiene and OSHA compliance consulting services as requested.
- Safety and health consultant for chemical plant in Georgia. Provide safety, industrial hygiene and OSHA compliance consulting services as necessary.
- OSH consultant for Denver International Airport as part of team conducting gap analysis for the FAA's draft SMS rule.
- Certified Industrial Hygienist for the CDC's respiratory fit testing and training program in Atlanta, GA. Reviewed training and fit testing and provided technical oversight for the program.
- Consultant for healthcare industry. Performed safety audits and ergonomics assessments, employee and management safety training, safety program and training program development, industrial hygiene monitoring and hazard control, workers' compensation loss control, and hazard analysis for a group of 25 hospitals and healthcare facilities in South Carolina.

Training

- Instructor for Bowen EHS Certified Industrial Hygienist (CIH) and Certified Safety Professional (CSP) online review courses. www.bowenehs.com
- Instructor for SC Chapter National Safety Council. Teach OSHA 501, 503 and OSHA Outreach 10 and 30 Hours Courses for General Industry as well as Accident Investigation, OSHA Recordkeeping, Confined Space Entry, Lockout Tagout, Hexavalent Chromium, and Advanced Safety Certificate Courses (Fundamentals of IH, Principles of Occupational Safety and Health, Safety Management Techniques and Safety Training Methods), among other courses.
- Adjunct instructor for Midlands Technical College for continuing education safety curriculum.

Industrial Hygiene

- Project manager for statewide industrial hygiene contract with South Carolina Electric and Gas Company. Performed baseline industrial hygiene sampling at power plants at various locations in South Carolina. Responsibilities included development of scope of work, implementing scope of work, sample collection, data evaluation, report preparation and budget administration.
- Project manager for \$400,000 industrial hygiene contract with WJB Dorn VA Hospital in Columbia, South Carolina. Performed microbial testing in compounding pharmacy clean room in accordance with USP 797. Responsibilities included development of scope of work, implementing scope of work, sample collection, data evaluation, report preparation and budget administration.
- Project Manager for chemical, indoor air quality and noise surveys for Nucor. Responsibilities included development of scope of work, implementing scope of work, sample collection, data evaluation, report preparation and budget administration.
- Project Manager for chemical, indoor air quality and noise surveys for Bose. Responsibilities included development of scope of work, implementing scope of work, sample collection, data evaluation, report preparation and budget administration.
- Project Manager for indoor air quality surveys in Richland County School District One. Conduct employee training, prepared mold remediation plans and perform viable airborne fungi and bacteria monitoring, surface sampling and spore trap sampling in schools and other district locations.
- Project Manager for indoor air quality surveys at Blue Cross Blue Shield of South Carolina. Perform viable and non-viable airborne fungi monitoring, surface mold sampling, dust sampling, and designed mold remediation plans for statewide office locations.

Professional Memberships/Affiliations

- American Society of Safety Engineers-President, SC Chapter 2006-2008
- American Society of Safety Engineers SC Chapter-Safety Professional of the Year 2005
- Carolinas Section American Industrial Hygiene Association- President 2011-2012
- SC Chapter National Safety Council-Executive Committee Board Member-2007-2008
- American Academy of Industrial Hygiene
- National Safety Council

Publications

- "Five Deadly Sins of Confined Space Entry", Industrial Safety and Health News, 5/01
- Contributing author for "Road Map to Healthcare OSHA Compliance," Healthcare Facilities Management Series. April 1999. American Society of Healthcare Engineers of the American Hospital Association. Publication number: 055166.
- OSHA 411: An OSHA Compliance Blog (<http://palmettoehs.com/blog-osh-411/>)