

The NEBB Professional

2019 – Quarter 3

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Cover Story:
Healthcare Facilities: Achieving Critical Compliance through Test and Balance

- The Benefits of Controlling Your Power Demand
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Please note that after careful review, NEBB has decided to retract portions of the article titled "USP 800: What You Must Know Before January 2020" that appeared in *The NEBB Professional* 2019 - Quarter 2. The updated version can be found here: www.nebb.org/NEBBProfessional.

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NEBB President's Comments

By: Jim Whorton

As I write my final article as NEBB President, I'm not only realizing how quickly the year passes, but also how many devoted and experienced volunteers and staff members ensure the continued success of the organization. To my predecessors who have provided sound direction and a guiding hand, and to my successors who will continue to work to lead the industry in certification and training, I would like to issue my heartfelt appreciation. The contributions these individuals make are often untold and deserve many thanks.

On behalf of NEBB, I would like to congratulate Darryl Boyce, who was installed earlier this summer as the 2019-2020 ASHRAE President at their Annual Conference in Kansas City. If that name sounds familiar, it's likely because Darryl has been a longtime NEBB volunteer and has written articles in this publication. He was gracious enough to serve as an Industry Stakeholder to NEBB for many years, providing input to better define our individual certification process. He also joined us in San Antonio this past April, as well as attended several previous conferences. The focus of Darryl's presidential theme is achieving operational excellence in facilities, which aligns with the reason NEBB was founded. We look forward to working with Darryl and ASHRAE to accomplish our parallel goals.

Regarding the NEBB Training Center in Gaithersburg, work continues. NEBB has secured many donations from equipment vendors for the buildout of the center, but is still in need of additional pieces of equipment to complete the project. If you are interested in donating equipment for this project, please contact Tiffany Suite (tiffany@nebb.org). When complete, NEBB will be able to provide multiple levels of training for technicians and professionals. When NEBB firms send personnel for training, ROI is a main factor in the decision—the employee will not generate revenue while in training, so there must be a substantial payback. In a single week, a training session will allow attendees to experience what they may encounter in one year of field work for each discipline NEBB provides certification.

NEBB's technical committees have recently released the 2nd Edition of the NEBB Technical Retro-Commissioning Procedural Standard and the 3rd Edition of the Whole Building Technical Commissioning Procedure Standard, both of which are ANSI Standards. Work continues on the new ANSI Standards for Compounding Pharmacy and Cleanroom Performance Testing Procedural Standards. All of these standards are created not only with NEBB volunteers, but also Industry Stakeholders, which strengthens their value to the industries they help to serve.

The much-anticipated update to the TAB Technician Manual is very near completion. I know this manual was a valuable resource for me as I entered the industry, and it will be just as valuable to today's technicians. The NEBB App, which will allow technicians to carry all NEBB formulas and other data on their phones in the field, helping improve efficiency, is also nearing release.

Although we voluntarily withdrew the CxPP program as an ANSI accredited certification earlier this year, NEBB continues to apply best practices to this and all certifications. This decision was not made lightly, but to best serve NEBB certificants and firms. The Board of Directors unanimously voted to proceed with this direction. NEBB maintains the CxPP program and maintains the ANSI Accredited Standards Developer (ASD) status with the Cx and RCx standards and soon to be completed standards mentioned above. In addition, the Exam Development Committee will continue to preserve the integrity of our testing and certification process.

With the changes in the certification programs, the Chapter Affairs Committee has been diligently working on the revisions to NEBB's governing documents to reflect these organizational changes. As mentioned at every chapter's recertification seminar, these documents are updated regularly and must be reviewed as part of the recertification process. Keep an eye out for the revisions, as they will be released in 2019.

In closing, to the NEBB volunteers who continue to maintain our industry-leading certification programs; the NEBB staff who support our firms, certified individuals and volunteers; and the industry stakeholders who help ensure we are meeting their needs, you ALL keep NEBB at the forefront of the industry. THANK YOU!

Healthcare Facilities: Achieving Critical Compliance through Test and Balance



Kerri Souilliard

Testing, adjusting, and balancing (TAB) services are essential to ensuring the building systems and equipment of any facility are operating as they were designed to perform. But when it comes to code compliant hospital projects, TAB is absolutely critical. TAB not only confirms whether systems are operating at their equipment rated efficiencies, but can also prevent costly downtimes in operability, cut unnecessary energy usage, and help uphold quality patient care for owners.

TAB firms exist to guide those hiring them in keeping their facilities compliant with the regulations set forth by regulatory agencies such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and state departments of health. Additionally, a project's design specifications can further outline parameters that must be met such as those of the Facility Guidelines Institution's published *Guidelines for Design and Construction*, or ASHRAE Standard 170 *Ventilation of Healthcare Facilities*. TAB providers certify whether or not the desired conditions are met.



Eric Jenison

Eric Jenison, President of Total Dynamic Balance, Inc.

NEBB Certified Firms and Personnel can provide TAB services, such as proper air flow and pressurization testing, needed to ensure compliance with many regulatory agencies. Taking the quality of TAB services a step further, the procedural standards and processes dictated by NEBB mean TAB work is accurately performed by a professional and well documented. The strict standards of NEBB Certification help

ensure clients are receiving the best TAB services possible, but ultimately, it comes down to the integrity of the technician himself.

"That's why I got into this business. It's either right or it's wrong; there's nothing in between. I got into healthcare because people were checking the test and balance and you had to do it right. Therefore, you had to compete with people that are actually doing the balancing correctly. The state's going to make sure you didn't just skip a few rooms because they're going to find it. They're going to verify that the TAB on the project is done correctly," states Jenison.

Technicians performing TAB services within critical healthcare environments—and therefore affecting the health of many healing patients—have even more reason to adhere to strict requirements. When the health of thousands of patients and the success of hundreds of medical professionals is on the line, the importance of maintaining a comfortable environment free of pathogens with the ability to spread infectious disease becomes that much more important.

For TAB technicians that may still be learning the ropes of working in healthcare environments, the basics are a good place to start:

1. **Verify the types of rooms that require special ventilation.** This includes measurement and verification of the sizes of those rooms.
2. **Identify and test the mechanical, electrical, and plumbing (MEP) equipment serving the special ventilation rooms.** Measure the number of air changes and air exchanges as defined by the regulatory authorities. Then, measure the pressurization differentials.
3. **Report the pass/fail of the room.** This means preparing certified reports of the testing to prove compliance with the regulations.



Photo: Courtesy of Price

4. **Adjust all air flow devices to achieve compliance with the regulations, including both air change rates and space pressure relationships.** Adjustments can help bring system operations up to meet minimum requirements.
5. **Recommend resolutions for any rooms that fail.** Test results can be used to help determine a suggested path forward, such as selecting devices and equipment necessary for correcting an inability to achieve the required air flows and pressures.

“In hospitals, there’s much more involved in making sure it’s right. You have to have the exact, correct amount of supply in a room. In an isolation room for example, you have to have the exact, correct amount of exhaust and you have to create an air change requirement minimum that you must meet along with a room differential pressure. It’s much more complicated because the test and balance person is required to meet those requirements to verify that the engineers designed it correctly, that the airflow you’re putting in the room is going to meet the air changes, and that the room differential pressure is going to meet the requirement,” describes Jenison.

“Then, you have complicated systems. For an example, operating rooms (ORs). A lot of times ORs in the state of Florida are recommended to have 20 air changes per hour, so most engineers will design 25 to 30. That’s 30 air changes going on in an OR room 24/7, 365. Well, some facilities have figured out that if they go to a two-position system—occupied, unoccupied—they could then save a whole bunch of money by not running the ORs at 30 air changes in the middle of the

night when they’re not being used. That adds a level of complication—now it involves a controls system, and min and max settings for the ORs—so, it’s much more difficult.”

Without fully realizing the unique challenges of TAB in healthcare facilities, clients do not always readily realize that TAB services are not always equal. A TAB firm with experience working in the healthcare industry will have more knowledge of the specific access points and timing granted by hospitals, more expertise troubleshooting within a protective environment, and greater abilities to train on-site facility personnel to keep things running smoothly between scheduled

TAB services. Many times, that vast experience means a more accurate cost estimate upfront—something owners should be aware of, when cross-comparing quotes from different firms.



Tom Hanlon

“There’s no education like experience and awareness. Situational awareness is always the key,” summarizes Tom Hanlon, Commissioning Projects Manager at Cromwell Architects Engineers.

Proper Estimating

TAB firms need to master estimating their projects accurately upfront in order to successfully work in the healthcare industry. This means acknowledging and anticipating the unique work that is done in the hospital facilities to be serviced. Any building housing medical staff and patient care is going to be much more difficult to access due to scheduled and unscheduled procedures that could prove fatal if delayed.



Mike Locke

“First and foremost, hospitals are interested in patient care. Hospitals are not on your schedule; you are on theirs. A technician cannot just waltz into an isolated, protected area or ICU because he has test and balance work to execute,” mentions Mike Locke, President of MechTech, Inc. “Of course, when

more areas can be easily accessed, TAB firms require less hours to perform the testing they are hired to do. The more available access that can be provided without compromising patient care, the better the chance of costs being decreased,” he continues.

This may sound like common sense, but it is something that can easily be forgotten when it comes time to estimate the job. A small detail like accessibility can greatly affect the number of hours that need to be accounted for, and therefore, overall cost. To overcome this issue and keep things affordable for both the TAB firm and the healthcare client, Locke suggests including a contractual clause mentioning the anticipation of reasonable access to the necessary area(s).

Ensuring Accuracy for Testing

“Even if the TAB firm is provided with the given measurements of the special ventilation rooms that are to be tested on paper, it’s imperative that the first thing you do as a TAB technician is come on-site and measure length, depth, and height because the regulations depend on cubic feet of the room. If the measurements are off, it directly affects the results of the tests,” Locke explains.

The accuracy of testing, adjusting, and balancing services is essential to these controlled hospital environments because they rely on TAB providers to deliver tests proving all critical, core ventilation routes are within compliance of specific JHACO or state regulations. TAB firms that work in healthcare know that if something goes wrong and someone gets sick, it is their reputation—and possibly even business—on the line.

NEBB Certified Firms use industry practices to measure the rooms they work within to ensure their work is correct from the beginning.

Researching Regulations

Another common challenge of offering TAB services for the healthcare industry is that most hospitals are built in phases. What that means is that the TAB firm needs to research the requirements for each part of the building they will be testing.

“If part of the hospital was constructed in 2002 and another part was added in 2018, those two separate areas could very likely have different regulations to comply with. A good TAB provider is going to know the differences to optimize the tests and note the code it was tested against accordingly,” says Locke.

Different states can have different requirements, too. A TAB provider needs to be well versed on the regulations of the states they work within and remain up to date on those regulations.

“If you’re used to one environment, you need to do your research if you get work in another state. We do work in a lot of places and would always research state health requirements,” cautions Hanlon. “For example, Arkansas and Missouri are bordering states, but their required air change rate for patient rooms is different.”

Providing Solutions

It’s important for TAB providers to help clients in every industry, but particularly in healthcare, to understand that the services they provide are a helpful and necessary resource. As a TAB provider, you can help clients see that you are there to help by offering professional expertise.

“TAB is not a threat, pointing out instances of non-compliance. Our tests are purely driven by regulations. We measure it, and if it fails, it’s our job to tell the owners how far off it is and how to fix it. We’re there to help them,” states Locke.



Photo: Courtesy of Price

However, it's not surprising that clients with failed systems and equipment can feel overwhelmed and even frustrated when facing such results and don't know where to start. By suggesting possible resolutions, TAB firms are not only helping to relieve owners and facility personnel of that headache, but also help themselves build long-term client relationships by being seen as a helpful partner.

"There tends to be a misconception that only engineers can provide solutions, but that is not true. TAB guys are knowledgeable about the systems and equipment they test, and therefore, able to offer client solutions. We're all qualified to do troubleshooting," suggests Locke.

TAB for Facility Maintenance

Most of the time, TAB is not involved with new construction until the bidding process when the project is already fully developed. TAB firms are hired on when the hospital project is being constructed, but continuous TAB work over the facility's lifecycle is vital to its long-term performance.

"If we're doing our job right, we should be providing training on proper maintenance procedures. We train owner's staff to do what we're doing, allowing them to do a quarter or half of what we're doing and then they only hire us once per year, which is the goal. In theory, we should be able to come back the next year and charge the same or slightly less," mentions Locke.

"As TAB providers, we really need to help people see that TAB is more than a contractor. We need to be viewed as an extension of the maintenance team," states Hanlon. "In the healthcare industry, TAB is a long-term partner. Most state codes are enforced only when a facility is built, but JCAHO is every 2 years."

For that reason alone, clients need TAB firms to perform testing and provide reports verifying compliance. But by encouraging clients to be proactive versus reactive, TAB firms can offer testing—and solutions—prior to inspection by a regulatory agency like JCAHO.

By periodically providing test and balance services throughout the life of the equipment, TAB firms can help healthcare owners reduce equipment malfunction, maintain sterile environments, and regulate energy consumption for their facilities. ■


About the Author

With over a decade of omni-channel marketing experience, Kerri Souilliard leverages her extensive background in digital strategy, copywriting and content development to serve clients' business goals. Her focus on key elements like messaging and branding, help lay the foundation for creative strategies that promote a company's story in the most effective way possible. Visit kreativstrategy.com.

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The Benefits of Controlling Your Power Demand

Jorge Herrera | Align Technology, Inc.



In today's competitive business world, it is in every facilities manager's interest to look for cost reduction opportunities. Not only does it make sense for business, but it is also good for the environment. More and more organizations are looking to promote rational energy use and some even utilize government incentives to attract interest from major consumers with solar, wind, and heat recovery investments.

However, some areas of opportunity that are often overlooked require a small investment or none. One of these opportunities involves looking at your company's electrical power consumption profile and potential energy saving features your HVAC equipment may already have. In addition, the tariffs your utility company imposes could include other opportunities for cost reductions.

Let's look at a six-story building occupied by a company of approximately 1700 employees providing CAD design and shared services for the medical device sector. The building was under a commercial electric power tariff (TCO). The objective was to find and justify a change of tariff, under the assumption that the change would not only lower the building's monthly energy bill, but also accommodate its power profile regarding maximum demand. The utility company offered a medium voltage tariff (TMT) based on maximum demand that could offer significant savings if the appropriate conditions could be met.

The first step is to analyze the building's power profile. The following graph (Figure 1) shows the total building power demand, power demand per floor, and the chiller plant power demand of the HVAC system. The profile shows a consistent cyclical demand pattern every 24 hours.

The existing TCO power and energy tariff is as follows:

Actual TCO Billing Tariff		
Energy Cost (\$/kWhr)	\$	0.123
Power Cost (\$/kW)	\$	19.20

Public Lighting	\$	297.74
Fire Department Tax	\$	3.76

The TMT tariff in consideration is:

Proposed TMT Billing Tariff		
Energy Cost Night (\$/kWhr)	\$	0.037
Energy Cost Valley (\$/kWhr)	\$	0.052
Energy Cost Peak (\$/kWhr)	\$	0.103
Power Cost Night (\$/kW)	\$	8.170
Power Cost Valley (\$/kW)	\$	12.870
Power Cost Peak (\$/kW)	\$	18.088
Public Lighting	\$	297.74
Fire Department Tax	\$	3.76

Because the proposed TMT tariff charges significant fees for max demand throughout the day, it is important to control peak power demand. Otherwise, the overall monthly bill could be significantly higher than expected. One very important aspect of the TMT tariff is the different costs associated with power and energy during specific periods of the day. These periods are daily and segmented in the following manner:

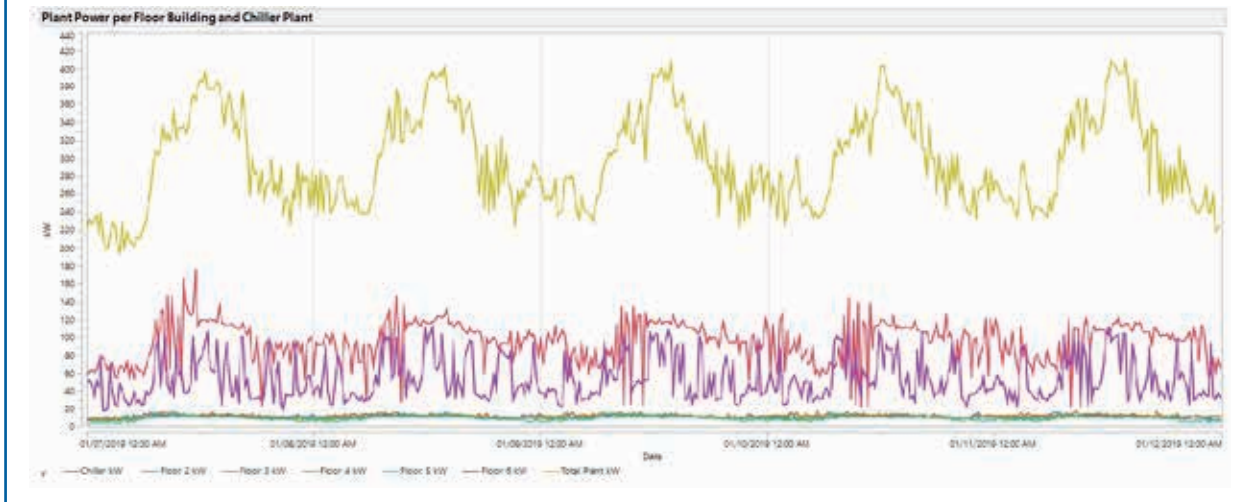
Valley: 06:00 - 09:59 and 12:31 - 17:29

Peak: 10:00 - 12:30 and 17:30 - 20:00

Night: 20:01 - 6:00

When we compare the billing of a typical month using both tariffs, we can determine if the proposed TMT tariff is feasible. We will use November 2018 as our test month. By using simple integration methods, we can determine the energy and maximum power demands during the three different periods mentioned previously, and calculate the monthly bill if we were under the TMT tariff. The actual billing for the month was \$35,214. Using the TMT tariff for the November power profile, the result would have been the following:

Figure 1



Proposed TMT Billing Tariff

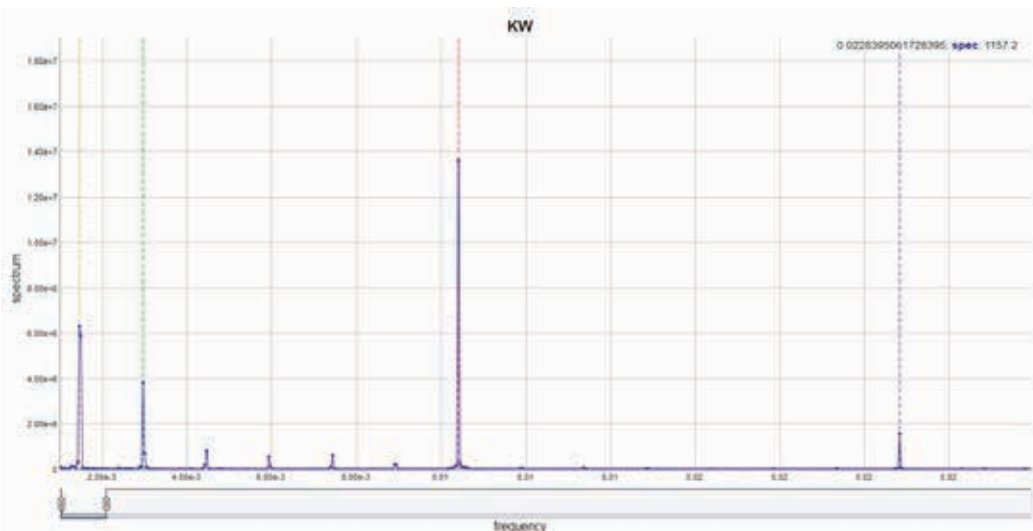
Energy Cost Night	\$ 2,852.59
Energy Cost Valley	\$ 4,481.32
Energy Cost Peak	\$ 5,381.47
Power Cost Night	\$ 2,741.66
Power Cost Valley	\$ 5,561.88
Power Cost Peak	\$ 7,950.20
Public Lighting	\$ 297.74
Fire Department Tax	\$ 3.76
	<hr/>
	\$ 29,270.62

These results show a potential savings of \$5,943.38 per month, or approximately \$71,320.56 per year.

Because the TMT tariff is heavily weighted on power and less on energy, and charges more during certain periods of the day, it is imperative to monitor and control maximum power demand. Otherwise, lack of control could cause high costs that will cancel out any forecasted savings.

If we look closely into the first graph, we can identify how the chiller and the different floors contribute to the overall building's power profile. At first glance, it seems that the chiller is the most important contributor—not only the highest, but also because the chiller's power profile seems to be in unison with the overall building's profile. To confirm this hypothesis, we can run a fast Fourier transformation and a correlation analysis of the chillers and building's power profile.

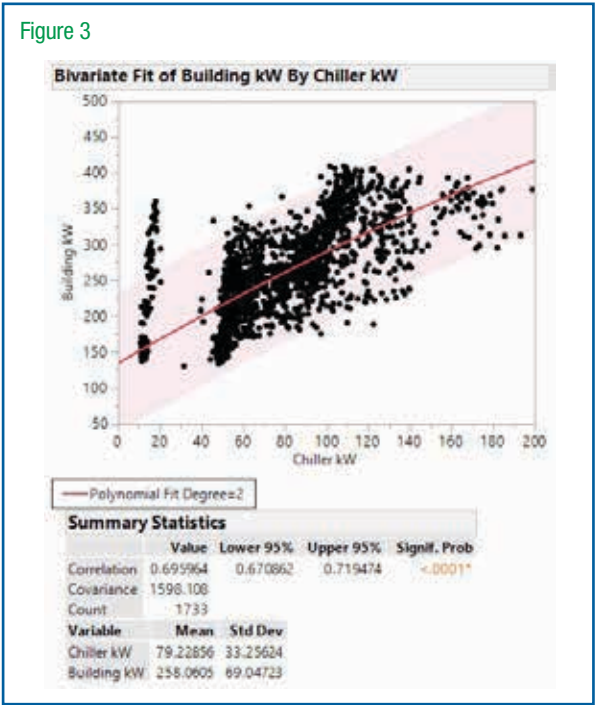
Figure 2



Not only does the Fourier analysis tell us the chiller is the most significant power contributor, it also shows the chiller has a 24hr/day cycle--same as the building's profile.

Regarding the chiller's correlation with the building's power profile, we can run a standard statistical correlation analysis to test the differences between the profiles. Using nine days of data with power data at 15-minute intervals, we can estimate the correlation by comparing the chiller's power profile as the input and the building's power profile as the output.

Figure 3



The statistical correlation of 0.7 confirms that the chiller's power demand is an important contributor to the overall building's power profile. Thus, if we can control the chiller's peak demand, we can control the building's peak demand.

We now know the chiller is our major focus. As with most commercial and industrial chillers, these have current limiters as part of the features embedded in their controls. The default setting is commonly set at "OFF." This feature can be set from 25 to 100 percent cooling capacity, limiting the current the chiller consumes. Historical data shows that 90 percent of the time the chiller was running at approximately 50 percent of its cooling capacity with occasional peaks at 75 percent. Based on the historical data, we set the current limiter at 65 percent.

After running the chiller at this setting for seven days in the summer season, we obtained the results detailed in Figure 4.

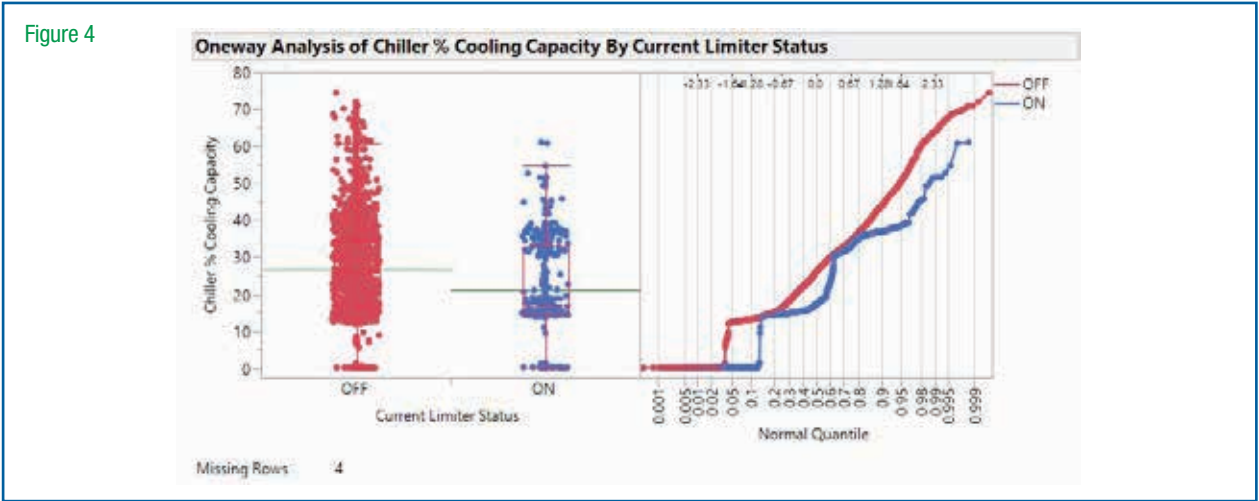
By enabling the current limiter, the maximum chiller running capacity decreased from 72 to 61 percent compared to the previous month. This is a 20 percent overall decrease in maximum cooling demand, which will translate into an approximate \$1,000/month additional savings using the TMT tariff. No negative cooling effect could be detected in the building regarding effects on its occupants or equipment.

In summary, by changing the utility tariff and identifying key power demand contributors, such as the chiller in this case, we can obtain substantial savings. ■

About the Author

Jorge Herrera is currently the Facilities Manager at Align Technology, Inc. with over 30 years of experience in the areas of Facilities, Maintenance, and Process Engineering. He is credited with various manufacturing facilities startup's in the electronics and medical device fields, LEED certifications, and various energy conservation initiatives. Jorge holds a BSc degree in Electrical/Mechanical Engineering from the Costa Rica Institute of Technology. This article was peer-reviewed by Subject Matter Experts/Technical Reviewers Jim Bochat and Andy Nolfo.

Figure 4



Is It Time for a New Thermal Imaging Camera?

Phil Emory | Neudorfer Engineers



Every now and then, as chair of the BET committee, I get asked what I think about a certain model or brand of a thermal imaging camera and whether it meets the NEBB standards. Getting emails like this is good for me. They trigger me to do a little research, re-educate myself on the features of the cameras, and see what's new on the market. Over the years, the technology that's been developed and implemented into the cameras has been phenomenal, while pricing has continued to drop.

The level of camera selected by NEBB and placed into the instrument list was a compromise. We tried to select a camera that would have the features needed to produce a pretty good image for our reports, but not be so price prohibitive that it would keep some people out of the market simply because they could not afford the camera.

After a recent review of a family of cameras, it may be time to bump up the level of camera just because of the current pricing structures. With that in mind, here are some things to think about if you are in a market for a camera.

Temperature Range

First and foremost, what are you going to be using the camera for? If you are just going to be analyzing building enclosures, then the temperature range of the camera does not need to be as great as what would be needed if you were doing buildings and then let's say boilers or steam traps. So, keep the temperature range in mind.

Resolution

A little more important is the camera resolution. Just like your computer monitors and TVs, the picture improves as the pixel range increases. Our standard is 160 x 120 and most of the very low-end cameras are there.

Thermal Sensitivity

Another factor is the thermal sensitivity. The NEBB standard is 0.1 @ 86 (F), meaning at 86 degrees, the camera is able to distinguish temperatures that differ by 0.1 degrees. This is pretty good, but for a few bucks more (and still what I would consider a very affordable camera), you can get down to 0.05. Just keep this in mind for now.

NETD

The last item is what is called the Noise Equivalent Temperature Difference, or NETD. This one is kind of hard to describe, but it literally is the "noise" of the image that the camera produces. This is a pretty big item and the NEBB Standard does not address this; we may want to revisit our standard in the future. In this case, the lower the number, the better the image that can be produced. Some of the low-end cameras will be up in the 80 to 100 range. What I consider to be a great camera for buildings is in the 45 to 60 range. You can get a good camera for under \$2,000 that is in the 80 to 100 range, but you can get a great camera that will be in the 45 to 60 range around \$5,000 or less.

When I selected our camera, I had the vendor bring in a whole family of models, I looked each one over, focusing on the quality of the image I was going to be able to put in my reports. The camera I selected has a NETD of 45 and believe me, the camera has paid for itself and in the quality of images it can produce with outside to inside temperature differential as low as 4F. At the suggested 10F differential, the quality is perfect.

This brings me to another important point, the ability to interpret an image takes time and experience. The quality of the camera really helps with that education process, and your ability to interpret the image. I've made quite a few poor interpretations of what I thought I was seeing versus what was actually happening, everyone has! At today's prices, this is a no brainer. Spend the extra money and get the better camera.

Everyone that is going to be writing a thermal imaging report should also have attended at least a level I American Society of Nondestructive Testing (ANT) certified thermal imaging course. The level I class focuses on how to operate your camera and how to take a quality image. The level II course is a refresher of level I, but then focuses on how to interpret the images produced by the camera. This was quite an eye opener for me and was a huge benefit in my thought process. These courses are several days and can be pretty tough, but well worth the time and money. Plus, they are required by the USACE if you are going to perform thermal imaging on their projects.

I hope this help. Happy hunting! ■

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Without My Business, Who Am I?

JT Kraai | Exit Strategies 360



Many business owners are both ecstatic and terrified at the thought of life without their business.

Life Beyond Work

Years ago, I brokered the business of an 83-year-old owner who had started her company in 1951 at the age of 29. Her name, face and personality were synonymous with the business, so it was with sensitivity we discussed retirement, hobbies, and the joy of family and grandkids, amongst other things. She agreed wholeheartedly, reaffirming her desire to sell.

Two weeks before closing, I received a call I will never forget. In tears, she was clearly struggling with her decision to sell. She finally said with exasperation, *“Without my business, who am I?”* After 54 years as a business owner, she had no idea who she was supposed to be outside of her business. Even at her age, it was overwhelming. Like many owners, she had a difficult time separating her two lives—business and personal. She couldn’t comprehend life beyond work.

Answering a Difficult Question

The above scenario may seem extreme, but it perfectly illustrates my point. To a degree, every owner must face the question, *“Without my business, who am I?”* I would argue you’re not ready to transition or sell until you’ve successfully answered it.

Why the struggle? Business ownership comes with privileges. As an owner you are needed. People depend on you. You are in control and your opinion is paramount. For some, being an owner and boss brings a gratification that may be difficult to give up. It can be troubling when realizing it’s coming to an end. As a result, you may not feel as important anymore.

When the Phone Stops Ringing

After one Canadian client successfully sold, he and his wife took a seven-day vacation for the first time in over 20 years. He called me upon his return. *“My week was a bit surreal,”* he said. *“My phone only rang twice in six days, and those*

calls were from my kids checking up on us! Apparently, nobody needed me... nobody cared where I was or when I was going to return. It’s a little odd, but I can get used to it!”

Who You Are, Not What You Do

As you think about retirement, considering a few key questions will help ease the ‘mental transition.’ These questions may include:

- How long since I’ve spent meaningful time with my family?
- What have I shown my family to be my priorities?
- Do I spend (enough) time on hobbies I enjoy?
- Am I a good friend to those around me?
- Do I regularly take time to create a healthy lifestyle?
- Am I able to contribute to my community on a regular basis?

By honestly answering questions like those above, many owners will go through a form of self-evaluation. Results will be found in virtually every facet of your decision making, specifically your renewed levels of confidence and peace of mind.

Honest Answers May Surprise You

Many owners approach retirement with ease and grace, welcoming it with open arms. Others struggle, as they venture on a quest to discover who they are and their purpose beyond work.

Once the essential financial questions surrounding a potential sale have been answered, I challenge you to ask yourself, *“Without my business, who am I?”* An honest answer will certainly assist in your decision making process and eventual timing of a sale. Plus, you just might be pleasantly surprised. ■

About the Author

JT Kraai is president of Exit Strategies 360, specializing nationwide in business valuations, sales and exit planning for specialty construction services/businesses. He can be reached 100% confidentially at 503-577-5649 or info@exitstrategies360.com.



NEBB attends the BOMA 2019 International Conference & Expo in Salt Lake City, Utah as an exhibitor.

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How Millennials are Changing Hiring Practices

From 2015 to 2016, organizations across the country experienced a remarkable shift in staff demographics. The rising dominance of millennials (those born between 1983 and 1998) is significantly impacting talent management strategies and changing the profile of staffing.

Executives are adapting recruitment and retention strategies based on these shifting workforce demographics. The ongoing growth in the number of millennials working is important because this generation brings values, priorities, and expectations to the workplace that often differ from those of older staff members.

The Advantages

The competition for hiring rising stars is intensifying. Companies compete with others to recruit and retain an “A+” team. According to a recent study from UNC’s Kenan-Flagler Business School, millennials are highly ambitious, looking for personal growth and career-development possibilities, personal freedom and flexibility. As widely reported and validated in the UNC study, many millennials prioritize value and meaning in their work over money, unlike the generations before them. Bottom line: if their jobs are aligned with their passion, millennials will go the extra mile.

“Meaningful, purposeful work” and “making a difference” are important considerations for today’s ambitious millennials. Now, more than ever, executives must sell the mission and purpose of their organization—and this time to a prospective employee. Executives who can explain to a potential

staff member how and why their role matters are most likely to succeed in making the hire.

It is easy to assume that financial compensation can be lowered if the company is hitting high marks on its mission, but that’s a mistake, especially in a competitive marketplace. Coming out of college, millennials carry enormous student loan debt and economic realities are hard to avoid. Research shows millennials collectively consider unemployment (27 percent), national debt (26 percent), and healthcare costs (25 percent) our nation’s biggest problems.

Interviewing and Recruiting

Recruiting millennials may require nontraditional approaches. Rather than filling out forms, submitting resumes and requiring travel, millennial candidates may be more successfully interviewed when using Skype, Google Hangouts, or Jitsi. A recent Jobvite survey reports that 94 percent of for-profit companies now use social media to recruit, and more job seekers are using smartphones to find work.

Offering Opportunities for Growth

This changing workforce profile shows significant shifts in the expectations that millennials are bringing to companies. A survey by PNP* reported that what respondents most often requested in interviews may not be what is most often provided by the company. Following mission and salary, the top interest expressed by 56 percent of millennial job-seekers is the opportunity for personal growth, specifically, on-the-job training and professional development opportunities. Yet over two-thirds of the survey’s hiring executives stated that they either “do not often” or “never” offer such training programs to staff. This disconnect can easily be addressed by executives. Effective training and professional development opportunities not only benefit new staff, but also enhance the workplace.

Changing Expectations – Theirs and Yours

Historically, human resources (HR) professionals and executive leaders have frowned on seeing “too many

Work Benefits Most Often Requested by Millennial Candidates:

Training and professional development	56%
Opportunities for promotion	50%
Flex time	47%
Incentive pay plan	31%
Support for continuing education	28%

jobs” on a resume. Nowhere has a generational evolution been more pronounced than with the number and tenure of previous job positions. Millennials are changing jobs with much greater frequency than their boomer parents. Studies show this mobility does not mean they are less committed to a job; rather, loyalty, engagement and dedication are much less apt to be envisioned as 20-year commitments.

Typically, today tenure is two to four years on a job. Fortunately, employers are becoming increasingly less concerned if a candidate has held three to five jobs over the past decade. In the PNP survey, 78 percent of respondents (directors and HR managers) noted they might mention fre-

quent job change in an interview but recognize such mobility is widely pervasive, while 21 percent said they look for three good, productive years from a new hire.

Shifts in workplace expectations will continue to push companies to change hiring practices and policies. Successful executives are reevaluating how they look at experience, as well as what they offer millennial talent. Cumulatively, these trends signal that talent management should be a full-time job, not an initiative undertaken only at specific points of need. ■

**Excerpted from PNP Staffing Group's Competitive Market Series, July 2016.*

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NEBB Chapter Updates

MAEBA Update

By: Trish Casey, *Chapter Coordinator*

MAEBA will be holding its Annual Recertification Seminar from September 22-23, 2019 at Harrah's Resort in Atlantic City, New Jersey. Come join the MAEBA Chapter for a full day of great educational topics including:

- Working in Confined Spaces Safety Presentation
- Venturi Air Valves – Phoenix Controls
- Predictive Balancing - Dwyer
- Building Enclosure Testing - Retrotec
- Update on NEBB Procedural Standards for TAB
- USP 797 – Azzur Labs
- NEBB National Update

All are welcome to join the MAEBA Chapter! Go to the MAEBA website for more information: www.maebanet.org.



North Central NEBB Update

By: Ashley Lang, *Chapter Coordinator*

North Central NEBB's Recertification Seminar date is set for Thursday, October 10, 2019, at the Radisson in Roseville, MN. The following speakers will be presenting: Keith Hill from MN Air, Justin Walsh from Vaisala, Trease Reeves from Dwyer, Vincent Paez from ATI, Derek Hendrick from Ameritech, and Topher Nelson from TSI.

In addition, multiple vendors will be displaying their products.



Radisson Hotel in Roseville, MN.

North Central NEBB meets four times per year: two meetings for general membership and two for the board. Topics discussed include finances, board member updates, updating and approving Chapter Bylaws, reviewing recertification seminar speakers and topics, firm issues and various sponsorship opportunities.

If you would like more information on the seminar and registration, or on the North Central NEBB Chapter, contact Chapter Coordinator Ashley Lang at 763.593.0941 or Ashley@smarca.com.

Northern California/Hawaii NEBB Chapter Update

By: Audrey Kearns, *Chapter Coordinator*

The Northern California/Hawaii NEBB Chapter will be holding its Annual Chapter Recertification Seminar on Friday, Oct. 4, 2019 from 7:30 a.m. to 5:00 p.m. at the River Terrace Inn in Napa, California.

Speaker Gus Farris from Nailor will be presenting "Efficiency and Applications for Airside Equipment," Brent Baird from Instrument Direct will present "Tools to Control Your Environment in the Bubble We All Live In" and Melissa Olsen from Belimo will be the event speakers. Six vendors will also attend the seminar to display their products: TSI, Instrument Direct, Evergreen Telemetry, Building Start, Ameritech and Retrotec.



The River Terrace Inn in Napa, CA.

The seminar location at the award-winning River Terrace Inn embodies the relaxed and casual ambiance of Napa with all the understated elegance and personalized service of Nobel House Hotels and Resorts. Located in the heart of downtown Napa along the Napa River, you can't find a better location for everything Napa.

For more information on the Seminar and registration you can visit www.nocalhawaiiinebb.org or contact Audrey Kearns, Chapter Coordinator at akearns@nocalhawaiiinebb.org.

Florida EBB Update

By: Terry Wichlenski, *Chapter Coordinator*

The Florida EBB 2019 Recertification Seminar & Annual Meeting was held May 2-3, 2019 at the Margaritaville Resort Orlando located in Kissimmee, FL. Our keynote speaker was Matt Nelson from Eco Commissions, OH presenting "Instant Experience - No Water Required. Field Notes from a Technical Commissioning Authority." The event also featured Bill Smith with Original Solutions Company and Kirsten Richnavsky on our first day of technical sessions. On day two, we had the honor of having Mr. Jeffrey Schools, NEBB President-Elect provide, "Compliance Update from NEBB's Chapter Affairs Committee" along with Bill Kinnard from Grandy & Associates covering "Monthly Money Matters," Marlene Linders from Philders Group International speaking on "Overview of Infection Control. Cross Contamination during Healthcare Construction," and our very own John Kneiss presenting "Giving Insight on Fan Curves."

We are now in the planning stages for our 2020 Spring Meeting and more information will be coming.

Our next NEBB TAB Practical Exam will be September 13 or 14th. Please contact Terry Wichlenski, FEBB Chapter Coordinator at 727.240.4254 for additional information.



Matt Nelson - Keynote speaker.



Mr Schools with NEBB presentation.



John Kneiss presenting.

Mid-South EBB Chapter Update

By: Ginger Slaick, *Chapter Coordinator*

Exciting things are happening in the Mid-South EBB (MEBB) chapter!

Registration is now open for the 2019 MEBB Recertification Seminar, Annual Meeting & Vendor Expo taking place September 21-22 in Savannah, GA. Anyone interested in attending can view the online brochure for event details, as well as register for the seminar through the Mid-South EBB website at www.midsouthebb.com.

MEBB has secured top speakers on various industry topics for the event, including one of NEBB's own, Travis Short. Travis is President of Sys-Tek and serves on NEBB's TAB Committee. His presentation titled *Advanced TAB* will focus on advanced content of TAB for CPs and CTs. MEBB is also privileged to have one of its own members, Jim McCullough from Brasfield & Gorrie, present on *Expectations of a Test and Balance Contractor*.

By request, a Spouse Day Trip has been added during the seminar. Spouses can register to participate in the Historic Trolley Tour & Lunch at Lady & Sons restaurant on Saturday, September 21.

In addition to the seminar, MEBB just recently launched new software which integrates MEBB's database with its website. The new software allows members to update their contact information, register for events online, add firm descriptions including services provided that will be visible to individuals searching MEBB's directory, quick access to resources such as MEBB and NEBB governing documents or required instrument lists and more! We are excited to offer this benefit to MEBB members and look forward to the live updates and streamline of information that the new software offers.

Last, and certainly not least, we would like to congratulate MEBB member, Rodney Hinton, Vice President of Palmetto Air & Water Balance on his recent appointment to the NEBB Board of Directors. Rodney has been a CP since 1992 and is certified in Building Systems Enclosure, Building Systems Commissioning, and Testing, Adjusting, & Balancing.



NEBB Marketing Chapter Liaison

"Connecting NEBB Chapters and NEBB National to expand branding efforts and promote professionals that comprise NEBB."

Has Your Chapter Signed Up Yet?

If not, contact marketing@nebb.org to get started.

NEBB 2019 Technical Seminars Schedule*

* Subject to change

SEPTEMBER 2019

Sound & Vibration Measurement (S&V)

September 30-October 4, 2019

Total Dynamic Balance

Deerfield Beach, FL

Seminar Registration Deadline: August 30, 2019

Optional Exam Day: October 2 & 4, 2019

Exam Deadline: August 30, 2019

OCTOBER 2019

Cleanroom Performance Testing (CPT)

October 7-9, 2019

NEBB TEC

Gaithersburg, MD

Seminar Registration Deadline: September 23, 2019

Optional Exam Day: October 10, 2019

Exam Deadline: September 7, 2019

Testing, Adjusting and Balancing (TAB)

October 13-15, 2019

IMI Facilities

Roswell, GA

Seminar Registration Deadline: September 29, 2019

Optional Exam Day: October 16, 2019

Exam Deadline: September 13, 2019

NOVEMBER 2019

Building Systems Commissioning (BSC)

November 4-7, 2019

NEBB TEC

Gaithersburg, MD

Seminar Registration Deadline: October 21, 2019

Optional Exam Day: November 8, 2019

Exam Deadline: October 4, 2019

Fume Hood Performance Testing (FHT)

November 4-5, 2019

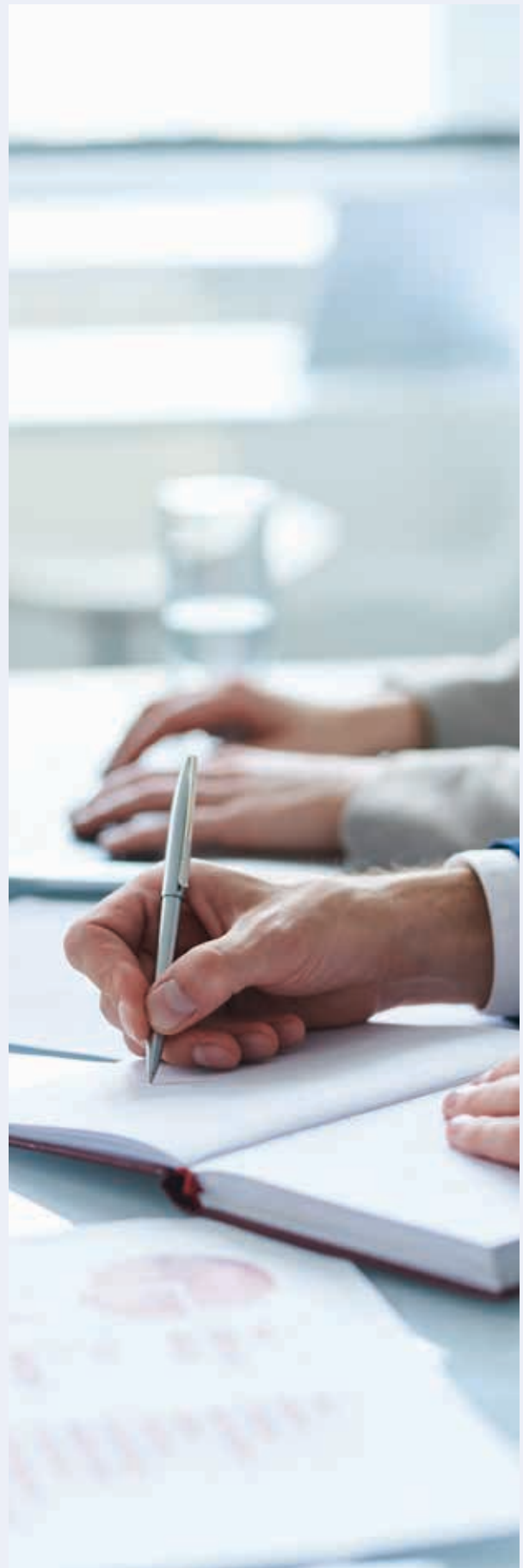
Labconco

Kansas City, MO

Seminar Registration Deadline: October 21, 2019

Optional Exam Day: November 6-7, 2019

Exam Deadline: October 4, 2019



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¹ As Found data is a multi-point data certificate as TSI received the instrument prior to performing any type of factory service.

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