Relative Humidity is “Relative”

By: Barton Associates, Inc.
www.ba-inc.com

Psychrometrics can be a complicated field of study. However, a psychrometric chart can be a simple, invaluable tool to help HVAC engineers and owners understand the relationship between air temperature and humidity. Relative humidity (RH) is a term that most people are familiar with, but its relationship with dry bulb (DB) temperature is typically under-appreciated. RH is the ratio of actual water in a given air sample compared to the water in a saturated sample at the same temperature and pressure. In simpler terms, the % RH gives a measure of how close an air sample (which could be your space) is to being completely saturated with water. Warmer air (higher DB) can hold more water than cooler air (lower DB). Therefore, air temperature directly affects RH. Below are two instances where understanding the DB by: Barton Associates, Inc.

MAEBA Recertification Seminar

This year’s Recertification Seminar is being held at the Kalahari Resorts and Conventions located in Pocono Manor, PA on September 23-24, 2018.

Sunday begins with Golf at Pocono Manor Resort and Spa followed by a Dinner Reception at Kalahari in the Zambezi Room and Veranda.

On Monday morning, join us for breakfast followed by the Welcome and Annual Meeting by Clint Franks, MAEBA President. The first presentation of the day will be “National Update/Bringing Clarity to Firm Recertification Requirements” by Jeffrey Schools, NEBB National Vice President and MAEBA Director. Next up is a Safety Presentation being given by SMCA Safety Director, Greg Wharton on “Ergonomic programs to help prevent falls from ladders”.

The morning will continue with “Air Flow Measurements – Part 1” being presented by Jim Rendeau - Vice President of Sales, Engineered Sales Corp. This presentation will cover: the pressurization airflow, outdoor air intakes - internal/external factors that influence intake flow rates. Preferred airflow measurement paths for building pressure and outdoor air control. Control strategies - how poor control strategies can undermine your work.

Jim will continue his presentation in a breakout room where he will present “Air Flow Measurements – Part 2”. Accuracy requirements for proper control of the pressurization and intake...
Relative Humidity

Unoccupied Summer Conditions: School classrooms are an example of spaces that have low internal heat gains during hot and humid outdoor conditions over summer break. These spaces can experience high RH conditions for a number of reasons. Sometimes the occupant/building operator’s reaction is to lower the temperature setpoint of the room to “wring out” more moisture. However, this practice usually has the opposite effect. If a space is at 75 deg F, 60% RH and the room setpoint is changed to 70 deg F, the space relative humidity can raise to 70% RH unless actions are taken to remove the moisture in the air.

Limits of Cooling Medium: Typical direct expansion and chilled water HVAC systems can generate cooling supply air that ranges in temperature from 52 to 58 deg F DB. During maximum cooling conditions, the supply air leaves the cooling coil at near saturated conditions, or 100% RH. The lowest possible RH in the room served by this supply air is directly related to the temperature of the space (assuming no additional moisture loss in the space itself).

<table>
<thead>
<tr>
<th>Room Temperature</th>
<th>Lowest Possible RH*</th>
</tr>
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<tbody>
<tr>
<td>75 deg F</td>
<td>46.8%</td>
</tr>
<tr>
<td>72 deg F</td>
<td>51.8%</td>
</tr>
<tr>
<td>68 deg F</td>
<td>59.3%</td>
</tr>
<tr>
<td>65 deg F</td>
<td>65.8%</td>
</tr>
</tbody>
</table>

*based on a 55 deg F DB, 54 deg F WB supply air condition

Space temperature is a critical parameter to consider when you are trying to reduce or maintain a low relative humidity in a space. Any solution to correct space humidity problems should address removing the water vapor from the air, not just changing the space temperature. If you need assistance in evaluating humidity concerns in your facility, please do not hesitate to contact Barton Associates, Inc. at 814-237-2180 or marketing@ba-inc.com.

Thank you to Barton Associates for allowing MAEBA use of this article.

NEBB Firm Recertification is now open!

NEBB firm recertification is now open! Please log into your portal to access the instrument recertification submission. Verification of ownership and current calibration of all NEBB-required instruments is mandatory every two years. If your firm’s current certificate and stamp expiration date reads March 31, 2019, your firm is due to recertify. MAEBA’s deadline for Firm Recertification is November 1, 2018.
flow rates. Startup and verification basics - understand the equipment you are evaluating and the tools you are using for verification. Verification vs. adjustment - when/when not to adjust? Verification/adjustment techniques that minimize uncertainties and improve building performance, with examples.

Ted Salkin, P.E. - Compliance Chair for NEBB Certification Board, Past President of MAEBA and NEBB, will be giving a “LEED Update and Impact on Commissioning and TAB” presentation in another breakout room.

Rick Papetti, CEM Commercial Product & Application Manager from Aeroseal LLC will be in the third breakout room giving his presentation on “Potential IAQ and energy impacts of duct leakage in commercial buildings.”

During an extended lunch, MAEBA will hold Dessert and Coffee with the Vendors. This is a great opportunity for attendees to meet the Vendors and view the latest products available.

Kalahari Resorts & Convention Center located in the Pocono Mountains, is home to the largest indoor waterpark. Each hotel room (Desert Rooms) includes admittance for four guests to the waterpark. The Resort also has the Spa Kalahari and Salon, Gorilla Grove Treetop Adventures ropes course and ziplines, varied retail shops, Marrakesh Market, authentic African artifacts, furniture and artwork. You will also find a big Game Room, Virtual Reality, Escape Rooms, Mini Golf, Mini Bowling, 7-D Motion Theater and Fitness Centers. So consider bringing the family!

Join us for the Dinner Reception Sunday evening at Kalahari.

Hold the Date!
NEBB Annual Conference in San Antonio, Texas
April 4—6, 2019
Falls and electrical hazards are two of OSHA’s fatal four hazards that balancers face daily. When balancers work at heights six feet or higher, they must follow the OSHA fall protection standard of having a personal fall arrest system. I recently explained to a group of balancers during an OSHA 30 class, how it is not just important to have a PFAS, but to check their harness before every use for any loose threading in the straps of the harness or corrosion within the D-ring. These safety checks are not just important to do for fall protection, but for electrical as well.

Balancers need to be vigilant in work areas where electrical hazards are present. When I hear workers being severely injured or killed due to an electrical hazard that was present, you often hear complacency was one of the primary reasons. For example, last year in Pennsylvania, there were two construction workers who were electrocuted. One of the workers was electrocuted from overhead powerlines and the other was electrocuted by trying to troubleshoot an HVAC system. Both employees died due to the electrical shock they received. These are just two examples where workers should have surveyed their area before they started working.

With the right preventative measures, falls and electrical hazards can be prevented in the work place. Checking and double checking could be the reason you make it home to your family or not. Stop and think – did I check my harness thoroughly, is my anchorage point sufficient to OSHA standards, did I de-energize the unit I will be working on? These are just a few questions that employees of balancing firms should verify before they start working. For more information, contact Greg Wharton, SMCA Safety Director at (610)828-4055 or gwharton@smca.org.

### NEBB’s Young Professional Network

Are you a young professional who wants to gather together to learn, share and expand your knowledge and make a difference, with the long-term goal of participating in NEBB? If you are a NEBB Certified Professional, Certified Technician or an Approved Candidate for certification, between the ages of 20 and 39, then check out NEBB's Young Professionals Network at YPN@nebb.org. You will also find YPN Technology, Tips & Tricks which has NEBBinar’s on how to use today’s technology to enhance your business practice.

[http://www.nebb.org/resources/ypn_technology_tips_tricks/](http://www.nebb.org/resources/ypn_technology_tips_tricks/)

### MAEBA Technical Committee

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A stamp and certificate that are the property of NEBB shall be issued to a Certified Firm with the Certified Professional’s name included. The stamp/certificate is to be used for certifying work performed in accordance with NEBB Procedural Standards, by a NEBB Certified Professional, while employed by a NEBB Certified Firm. A Certified Professional may only perform work or advertise the ability to perform work in accordance with the NEBB Procedural Standards at one (1) NEBB Certified Firm. Certified Professionals shall register with NEBB the Certified Firm for which they are employed, and not perform these duties at any other NEBB Firm until all appropriate transfer paperwork has been completed, previous Firm stamps returned, and new Firm stamps and certificates issued.

The proper use, management and safekeeping of NEBB certification stamps are the responsibility of the Certified Firm to whom they are issued. In particular, but without limitation:

A Certified Firm shall return all NEBB stamps to NEBB within fifteen (15) days of suspension or decertification.

Paper Certified Report: For manual certifications, the ink stamp issued by NEBB to the Certified Firm with an original signature or ink signature stamp of the Certified Professional shall be applied to the certification page of a NEBB report. The signature and date shall not obscure the Certified Professional’s name or Certified Firm’s number in the stamp.

Electronic Certified Report: An electronic version of the NEBB-issued stamp (digital representation) shall be applied to the certification page of a NEBB report in electronic form, along with an electronic version of the Certified Professional’s signature. This allows the Certified Professional while employed by the NEBB Certified Firm to affix a computer-generated stamp and an electronic signature to a NEBB report in electronic form. Stamp Security: Certified Firms shall take appropriate measures to ensure security of their ink stamp, electronic stamp, ink signature stamp, and electronic signature. The security and use of ink stamp, electronic stamp, ink signature stamp, or electronic signature are the responsibility of the Certified Firm.

Loss of Rights

The Certified Firm will report any change in Certified Professional/Certified Technician employment to the NEBB Chapter and to NEBB within fifteen (15) days of a change in employment status. Certified Professionals and Certified Technicians will have to apply for a certification transfer from one (1) Certified Firm to another Certified Firm or Applicant Firm. The Certified Professional/Certified Technician and the Certified/Applicant Firm shall submit a certification transfer application and pay a transfer fee within thirty (30) days of the change. The certification transfer will not be official until approved by NEBB. The Certified Professional/Certified Technician will be unable to perform work in accordance with NEBB Procedural Standards during the certification transfer process and will be reinstated only when the transfer is approved by NEBB.

A Certified Professional/Certified Technician not employed by a Certified Firm is unable to perform work in accordance with NEBB Procedural Standards.

A Certified Firm cannot publish or claim the Certified Professional’s/Certified Technician’s NEBB certification until the Certified Professional’s/Certified Technician’s transfer application has been approved by NEBB.

Failure of any NEBB Certified Professional/Certified Technician or Firm to comply with the above requirements may result in Administrative or Disciplinary Actions which could include, but are not limited to, Continuing Education requirements, Probation, Mentoring, NEBB Administrative Charges, and Decertification for the Certified Professional/Certified Technician and Certified Firm in the manner prescribed in the NEBB Operational Procedures.
The MAEBA Board of Directors would like to remind firms of the Coordination and Supervision of ALL NEBB jobs. According to the NEBB Testing, Adjusting and Balancing Procedural Standards Manual (Eighth Edition – 2015), all firms must abide by the following procedures:

2.4.3 COORDINATION/SUPERVISION

The NEBB Certified Professional is responsible for ensuring either a NEBB CP or NEBB CT is continually present while TAB work is being performed on every NEBB certified project and directing those technicians in performing the work. The NEBB CP is ultimately responsible for the accuracy of any field measurements and certified reports generated.

2.4.4 PROJECT COMMUNICATION

Before the final report is submitted, the CP may provide reports of progress and problems as encountered to appropriate project personnel. When reporting a problem, the CP may provide input as needed to determine causes and make recommendations.

2.4.5 WORK COMPLETION

The CP determines when the TAB project is complete, and when to submit the Final TAB Report. Generally, the specified TAB project is complete when:

a) All HVAC systems and components are tested and balanced within specified tolerances.

OR

b) Reasonable efforts have been taken to achieve requirements of Procedural Standard.

In this event the CP will notify the appropriate project personnel of system deficiencies preventing balancing within design tolerances before the final report is submitted. Any variances from design quantities, which differ from NEBB tolerances, shall be noted in the project summary of the Final TAB Report.

2.4.6 COMPILATION AND SUBMISSION OF FINAL TAB REPORTS

A Final TAB Report shall include information and data to provide an accurate quantitative record of system information, measurements and final settings. Reports shall include notes and comments as appropriate to provide the reviewer with additional details including test procedure, system operation and results. Reports shall meet the requirements listed in Sections 5 and 6.

The certification page bears the stamp of the CP/CF. The stamp on the certification page is signed as evidence the CP has personally reviewed and accepted the report.
MAEBA would like to thank the vendors that joined this year!

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Calendar of Events

September 23-24, 2018
MAEBA Recertification Seminar
Kalahari Resorts, Pocono Manor, PA

April 25, 2019
MAEBA Semi-Annual Meeting
Radisson Hotel, Trevose, PA

September 22-23, 2019
MAEBA Recertification Seminar
Harrah's Resort Atlantic City

For NEBB Seminars Go to www.NEBB.org

October 1-3, 2018
NEBB Cleanroom Performance Testing Seminar

October 8-10, 2018
NEBB Testing Adjusting and Balancing CP Seminar

October 15-17, 2018
NEBB Building Systems Commissioning CP Seminar

November 5-6, 2018
NEBB Fume Hood Performance Testing Seminar

April 4th - 6th, 2019
NEBB 2019 Annual Conference
San Antonio, Texas