President’s Message

Chapter’s Committee Members

Technical Article:
Mass Flow Compensation in Room Pressure Controlled Environments
By Curtis Worley

Cleanroom Performance Testing Requirements for Firms

Chapter Annual Meeting Set in Monterey

Title 24 - Do You Know What It Is?

Did You Know?

Calendar of Events
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We are in an unprecedented scenario of fight or flight and I hope each of you chooses to fight!

Relationships form the backbone of our industry. From general contractors to specialty contractors to owners, it’s the people that make this industry great and relationships are what will bring us through tough times. As the industry and the world continues grappling with COVID-19, this has never been more apparent.

Our NEBB organizations have a distinct, essential opportunity during this crisis. Our continued support of Medical and Biopharmaceutical operations help to keep people safe and also help to maintain and build up the healthcare infrastructures in our communities. Hospitals and Clinics now more than ever need qualified testing agencies to verify the quantities and quality of their ventilation. This as well as pressure cascades and pressure relationships in procedure and operating rooms are for the safety and well being of the front line medical workers as well as patients who need help and service. This is where the NEBB certified agency can do the most good.

We have always had many reasons to be proud of our effect on each of the facilities we work on, influencing the final health and comfort of the end-user. Now more than ever it is so critical for the TAB industry to maintain integrity and quality in all that we do. In that vein, I and the NEBB board would like to encourage you to love on your families, take care of your health and safety, and do the best you can to be a positive influence on those you are working with and working for.

From my family to yours, praying for all those you care for.

Jason Huffman
NorCal Hawaii NEBB Chapter President.
Change Fan Speed In 3 Easy Steps

Do More In Less Time Accurately

Example—Typical Fan Issue

<table>
<thead>
<tr>
<th>Design</th>
<th>4800 CFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>4250 CFM</td>
</tr>
<tr>
<td>Increase</td>
<td>550 CFM</td>
</tr>
<tr>
<td></td>
<td>or 11%</td>
</tr>
<tr>
<td>Pulley Type</td>
<td>Variable pitch</td>
</tr>
</tbody>
</table>

Data Obtained by measurement

| Pulley Size | 5.35 (5.4") |
| Pulley OP   | #6          |
| Belt        | Size B      |

Step 1

Pulley GPS

Combined analog/digital instrument to read the operating position, OP, of a VPP, belt size and bore.

Operating Data

Chart To navigate airflow between pulleys and all the operating positions, OP of a variable pitch pulley as well as to validate accurate belt use.

Step 2

Read Operating position and belt size

Step 3

Pulley GPS

On 5.4” VPP Operating Data Chart locate OP #6 (intersection of OP #6, red cell)

At OP #6 go left to increase airflow

The flow can only be increased 10% or 13%

For 13%, close the sheaves by 5-half cycles to OP #2. For 10% close it by 4-half cycles to OP #3

Finally, check the belt for adequacy. From the Belt Color code, belt B is adequate at OP #2 and #3

That is it. You are done. It just doesn’t get any easier to change fan speed, you save time and make more money.
Northern California/Hawaii Chapter

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Mass Flow Compensation in Room Pressure Controlled Environments

By Curtis Worley
Pacific Test & Balance, Inc.

Recently on a Biopharmaceutical project we were asked to troubleshoot fluctuating room differential pressure issues.

The background was a 15 year old facility constructed specifically for large scale Biopharma production. Approximately 250,000 square feet and approximately 100 pressure differential monitored rooms. In most rooms the supply air is controlled by an airflow station with feedback to a building automation system which in turn was set to maintain constant volume airflow. The return air was similarly controlled.

The issue plaguing the facility over the past 15 years was that of intermittent room differential pressures that fluctuated up and down randomly. Airflow trending was set up within the BAS (Building Automation System) and resulted in very stable airflows for both the supply and return. Room differential pressures were independently monitored and the results agreed with permanently mounted devices that the room DP’s were actually fluctuating when airflow trends indicated no change in airflow. The room envelopes were investigated and found to be reasonably air tight with very little exfiltration or infiltration.

After setting up additional trend information a common link was found between the room temperature and the pressure issues. It appeared that as the zone supply air temperature increased or decreased dramatically the room pressure experienced an increase or decrease in pressure. It was found that the airflow station was of a “hotwire” type of technology and by default also compensated for mass flow changes with the temperatures measured at the sensor array prior to the airflow volume output signal. These airflow stations in some situations were mounted directly downstream of the zone reheat coils and subject to temperature swings as the reheat coil control valve modulated to obtain the room temperature set point.

As the mass flow compensated supply airflow was discharged into the room its mass then changed to that of the room temperature. The room pressure fluctuations were directly caused by the mass flow compensation feature of the airflow stations, and could be seen by small changes in the zone supply damper position.
but with no airflow change indicated on the BAS but could be seen by Pitot Traverse. The manufacture of these devices was contacted and they were very helpful in providing a permanent solution to the problem by offering new hardware versions developed directly to resolve this problem at no cost to the building owner. The new hardware now has the option to enable or disable mass flow compensation as part of the hardware configuration.

With the mass flow compensation disabled velocities at the sensor array are maintained regardless of the change in mass flow due to temperature changes by reheat valve modulation, and room pressures are now stable. This solution avoided the relocation of the airflow sensor arrays from downstream to upstream of the zone reheat coils, which still may have been problematic due to supply air temperature fluctuations in the discharge air of the air handlers due to supply air temp reset strategies.

In the end the customer was able to resolve a long term issue without a large mechanical system retrofit in a very economical manner by calling for the services of a qualified NEBB firm.

About the Author

Curtis Worley Started in the TAB industry in December of 1983, specializing in Biopharmaceutical and DDC controls. He is the current chair of the NEBB Title 24 committee. He manages field technicians for the California branch of Pacific Test and Balance. Inc. Curtis is NEBB, TABB, and AABC certified.

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2020 NEBB Annual Conference

A Clear Vision to the Forefront of a Changing Environment

NEBB Reschedules the 2020 Annual Conference for August 18th - 20th, 2020
Effective January 1, 2020, all Cleanroom Performance Testing (CPT) projects are required to have a Certified Technician performing testing.

Does your firm satisfy this requirement?

For more information on NEBB’s CPT certification program, be it for the CPT CT or the CPT CP, please contact: certification@nebb.org.

Please note: One must first complete the full certification process for the CPT CT certification before applying for the CPT CP certification.
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- Locates coordinates to read airflow with precision.
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Northern California/Hawaii
NEBB Chapter Annual Meeting

The 2020 Chapter Annual Meeting has been scheduled for Friday, October 2, 2020 at the Monterey Plaza Hotel & Spa in Monterey, California.

Mark Your Calendars!
WHAT DO YOU KNOW ABOUT TITLE 24?

DO YOU KNOW THAT NEBB IS AN APPROVED MECHANICAL ACCEPTANCE TEST TECHNICIAN CERTIFICATION PROVIDER?

WHAT IT IS

Mandated by the California Energy Commission, the Title 24 program states that only a mechanical Acceptance Test Technician (ATT) certified by a Certification Provider may perform testing for HVAC systems and controls when the mechanical equipment is required to meet specific energy efficient processes. This Building Energy Efficiency Standard applies to all newly constructed buildings, additions, and alterations.

Technicians have been required to perform acceptance testing for nonresidential buildings since the enforcement of the 2005 Building Energy Efficiency Standards, and have had the opportunity to become trained and certified in performing and documenting acceptance testing for lighting controls and mechanical systems for nonresidential buildings since 2013.

WHY IT MATTERS

- Once an Employer is Certified and has Certified Technicians, they may perform Title 24 testing for the forms in which they are Certified, meaning greater opportunities and potential work.

- Technicians that are not certified when the final date is announced will no longer be able to download the forms for completion. Inspectors will refuse all Non-Certified forms, in turn, holding up the final permitting process which is essential to building turnover and end-user occupation.

- Contractors that cannot submit Certified forms and are found to be holding up the Temporary Certificate of Occupancy can also face costly contract fees.

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DID YOU KNOW?

DO YOU KNOW HOW MANY HOURS ARE NEEDED FOR RECERTIFICATION?

6 hours per year are needed by a NEBB Certified Professional or an accumulation of 12 hours total for each recertification period. 3 hours per year are need by a NEBB Certified Technician or an accumulation of 6 hours total for each recertification period.

HOW OFTEN DO YOU GO THRU RECERTIFICATION?

Recertification takes place every 2 years. Do you know when you are due?

IF YOU DIDN'T KNOW, THEN YOU NEED TO GET MORE FAMILIAR WITH YOUR NEBB OPERATIONAL PROCESURES MANUAL.
Calendar of Events

CLEANROOM PERFORMANCE TESTING SEMINAR
September 21 - 23, 2020
All Day Event
NEBB TEC
Gaithersburg, MD
Registration is now open. Log onto www.nebb.org to sign up or to receive more information. Deadline is September 7, 2020

BET TESTING SEMINAR
September 24 - 26, 2020
All Day Event
NEBB TEC
Gaithersburg, MD
Registration is now open. Log onto www.nebb.org to sign up or to receive more information.

SOUND AND VIBRATION MEASUREMENT SEMINAR
September 28 - October 2, 2020
All Day Event
Total Dynamics Balance
Deerfield Beach, FL
Registration is now open. Log onto www.nebb.org to sign up or to receive more information. Deadline is September 14, 2020

RETRO-COMMISSIONING FOR EXISTING BUILDINGS
October 12 - 15, 2020
All Day Event
NEBB TEC
Gaithersburg, MD
Registration is now open. Log onto www.nebb.org to sign up or to receive more information. Deadline is September 28, 2020

TESTING, ADJUSTING AND BALANCING SEMINAR
October 18 - 21, 2020
All Day Event
IMI Facilities
Roswell, GA
Registration is now open. Log onto www.nebb.org to sign up or to receive more information. Deadline is October 4, 2020

FUME HOOD PERFORMANCE TESTING SEMINAR
November 2 - 3, 2020
All Day Event
Labconco
Kansas City, MO
Registration is now open. Log onto www.nebb.org to sign up or to receive more information. Deadline is October 19, 2020

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