NEBBinar: A TAB Professional’s Wish List

October 23, 2013
Nick White, P.E.
Chairman of NEBB’s TAB Committee

Nick White is the President of ND White Engineering has been involved in the industry for over 30 years. His experience includes Consulting, Test & Balance, Commissioning and Retro Commissioning. He is the Chairman of NEBB’s TAB Committee and is currently leading the update to the Eighth Edition of the TAB Procedural Standards. He has been a NEBB Certified Professional since 1991.
Rodney Hinton
NEBB’s TAB Committee

Rodney Hinton is the VP of Palmetto Air & Water Balance, has been involved in the South Carolina Construction industry for over 30 years. His experience includes Air Barrier Testing, Mechanical Design, Mechanical Construction, Test & Balance, Commissioning and Retro Commissioning. He is a member of the NEBB Test, Adjust and Balancing Committee. He is a Member of ASHRAE. He has been a NEBB Certified professional since 1991 and has co-authored several standards regarding TAB and BET for NEBB.
Tom Hanlon  
NEBB’s TAB Committee  

Tom is a member of NEBB’s TAB committee. He has more than 40 years of experience in refrigeration systems, control system design, installation, start-up, project management, technical consultation, and systems commissioning.
Agenda

Overview of Testing, Adjusting and Balancing

Industry Improvements: Past 25 Years

Install Concerns

Question and Answers
Overview of Testing and Balancing

“Air Balancing” is a misnomer. A good TAB Professional is Quality Checking the project – both testing the equipment and documenting unresolved problems before retainage is paid and warranty expires; the financial benefit of this alone can far exceed the cost of the TAB work.

Disclaimer – please don’t be offended – our intention is not to be critical. We want to give factual and constructive insight on what a TAB Professional routinely faces when he shows up to balance a project.
Agenda

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Industry Improvements: Past 25 Years

Install Concerns

Question and Answers
State of Industry

- Things have significantly improved over past 25 years
- TAB is commonplace
- Contractors understand the process and are much more receptive and responsive to deficiency lists
- Duct leak testing is fairly common
- Better controls – a quantum leap in improvement
- Speed drives are reliable – minimal tripping
Agenda

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Industry Improvements: Past 25 Years

Install Concerns

Question and Answers
Install Concerns
Late Notification

“More often than not, I am not called until the owner is moving in or has moved in.”
Job Not Complete when I arrive to begin TAB

“Quite often, I arrive to start my work and find equipment not wired and not started up.”
Building Pressure

- Construction problems – envelope not sealed properly
- Connected to existing buildings with pressure problems
- Outside air and exhaust not under control
Dampers

“Forget sewage waste heat recovery systems – could I get some good dampers down here please?”

- Missing dampers
- Covered by insulation – not flagged
- Not - Accessible
  - Over sheetrock or out over non accessible areas.
  - Have remote operators that are stuck or not even connected due to lack of coordination between ceiling contractor and mechanical contractor.
  - Have access door but actual damper is too far away to reach.
Install Concerns

Dampers
Dampers (continued)

• **Poor Quality**
  - Homemade with all thread, stamped metal handle, conduit for shaft spacer, no locking nut.
  - No stand off to get above the insulation and provide a backing to mark damper position.
  - Damper blade is undersized and / or off center – does not close or open properly.

• **Self tapping screws (covered with duct sealant) interfere with the blade operation – must be found and removed to operate damper.**
Duct Leakage

“I can hear and feel significant duct leakage when I poke my head up above the lay-in ceiling. What duct should be sealed?

• Most agree on high and medium pressure duct.

• Secondary and low pressure duct?

• Return and exhaust? Usually not sealed or leak tested and a big source of problems on proper balancing.
Excessive Duct Pressure Drops

- Primary Air duct velocities exceeding 2500 fpm.
- Fire dampers with curtain in the air stream – reduces cross sectional area.
- Duct modified from original plans.
- Long runs of flex.
Air Systems

Series Fan Powered boxes running backwards – controls not complete.
Hydronic Systems

- System not flushed – trash and debris in lines.
- System not circulated for adequate length of time – entrained air.
- No balancing valves provided (often just ball valves with no memory stop).
- Controls not complete – so control valves are shut.
Noise

- Grilles tapped right out of the bottom of the duct.
- Dampers just upstream of the grille.
- Primary Air Duct – high velocities – sometimes up in the 3500 fpm range.
- Hydronic systems – high velocities and entrained air.
Noise (continued)

- Equipment noise –
  - Equipment rooms too close to noise sensitive areas.
  - Equipment operating near the natural frequency.
  - Equipment not dynamically balanced.
  - Very high rpms.
  - Belt drives not properly aligned and adjusted.
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Question and Answers
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Thank you for joining the webcast.

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