



Three Keys to a Successful Vertical Lab Start-up

Congratulations! You, your design team, and contractor have just celebrated the completion of a project at your R&D lab and today is the landmark day when your employees will begin working in their new space. How confident are you that the systems will all work as intended? How problematic will it be if they do not?



A functioning R&D lab is reliant upon the availability of highly integrated systems. For example, the hood system is arguably the most complex, involving multiple vendors and contractors working towards a complete and balanced system. Just because the equipment turns on does not mean it will perform as intended.

Having engineers and contractors follow defined industry standards and procedures such as ASHRAE Standard 110, Methods of Testing Performance of Laboratory Fume Hoods, helps take the guesswork out of whether or not a system will perform properly; however, not all systems have such defined standards for the varied elements of a laboratory. So what can you as an owner do? Here are three keys to a successful start-up:

- 1. Identify performance requirements.** Define your system performance needs in clear, precise, plain language, or Owner Project Requirements (OPR), without specifying the engineering design requirements. Consider these examples:
 - A Reverse Osmosis (RO) water system capable of supporting simultaneous usage at any five faucets for a continuous usage of five minutes.
 - An energy management system interface that can be operated without specialized knowledge.
- 2. Validate prescriptive requirements.** Review the recommended design solutions, or Basis of Design (BOD), against the OPR and challenge the design team, as needed, to validate that the system design meets your prescribed needs.
- 3. Insist on a Startup Process.** Require your design team to develop a startup procedure for all the building systems. This should be a systematic process of defined expectations and signoff for the completion by the contractor, equipment providers, engineer, and finally the owner. The start-up process and requirements must be integrated into the project specifications to ensure that the contractor bids it in their scope of work and is contractually committed to the start up activities.

Remember, do not assume everything will start up correctly...if you are not insisting that it must. Even if your contracting team has done thousands of these types of systems, it is still a specialized, customized one-of-a-kind project for you as the owner. Make sure you talk to your architect and contractor about start-up procedures and documenting the results for future reviews.

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experience in brief

The Start-up: Critical Success Factors

1. The system starts up on time.
2. The system produces the required result.
3. Turnover from contractor to owner is seamless.
4. Plant personnel understand design intent.
5. Plant personnel can operate the system.

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