

# Hiring Professional Assistance to Solve an IAQ Problem

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Many IAQ problems are simple to resolve when facility staff have been educated about the investigation process. In other cases, however, a time comes when outside assistance is needed. Professional help might be necessary or desirable in the following situations, among others:

- Mistakes or delays could have serious consequences (e.g., health hazards, liability exposure, regulatory sanctions).
- Building management feels that an independent investigation would be better received or more effectively documented than an in-house investigation.
- Investigation and mitigation efforts by facility staff have not relieved the IAQ problem.
- Preliminary findings by staff suggest the need for measurements that require specialized equipment and training beyond in-house capabilities.

You may be able to find help by looking in the yellow pages of your telephone book (e.g., under “Engineers,” “Environmental Services,” “Laboratories - Testing,” or “Industrial Hygienists”). Local or State health or air pollution agencies may have lists of firm offering IAQ services in your area. It may also be useful to seek out referrals from other building management firms.

Local, State, or Federal government agencies may be able to provide expert assistance or direction in solving IAQ problems. It is particularly important to contact your local or State Health Department if you suspect that you have a serious building-related illness potentially linked to biological contamination in your building.

If available government agencies do not have personnel with the appropriate skills

to assist in solving your IAQ problem, they may be able to direct you to firms in your area with experience in indoor air quality work. Note that even certified professionals from disciplines closely related to IAQ issues (such as industrial hygienists, ventilation engineers, and toxicologists) may not have the specific expertise needed to investigate and resolve indoor air problems. Individuals or groups that offer services in this evolving field should be questioned closely about their related experience and their proposed approach to your problem.

As with any hiring process, the better you know your own needs, the easier it will be to select a firm or individual to service those needs. Firms and individuals working in IAQ may come from a variety of disciplines. Typically, the skills of HVAC engineers and industrial hygienists are useful for this type of investigation, although input from other disciplines such as chemistry, chemical engineering, architecture, microbiology, or medicine may also be important. If problems other than indoor air quality are involved, experts in lighting, acoustic design, interior design, psychology, or other fields may be helpful in resolving occupant complaints about the indoor environment.

## MAKE SURE THAT *THEIR* APPROACH FITS *YOUR* NEEDS

As you prepare to hire professional services in the area of indoor air quality, be aware it is a developing area of knowledge. Most consultants working in the field received their primary training in other areas. A variety of investigative methods may be employed, many of which are ineffective for resolving any but the most obvious

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situations. Inappropriately designed studies may lead to conclusions that are either false negative (e.g., falsely concludes that there is no problem associated with the building) or false positive (e.g., incorrectly attributes the cause to building conditions).

Diagnostic outcomes to avoid include:

- n an evaluation that overemphasizes measuring concentrations of pollutants and comparing those concentrations to numerical standards, and
- n a report that lists a series of major and minor building deficiencies and links all the deficiencies to the problem without considering their actual association with the complaints.

Considerable care should be exercised when interviewing potential consultants to avoid those subscribing to these strategies. A qualified IAQ investigator should have appropriate experience, demonstrate a broad understanding of indoor air quality problems and the conditions which can lead to them, and use a phased diagnostic approach.

## SELECTION CRITERIA

Most of the criteria used in selecting a professional to provide indoor air quality services are similar to those used for other professionals:

- n company experience in solving similar problems, including training and experience of the individuals who would be responsible for the work
- n quality of interview and proposal
- n company reputation
- n knowledge of local codes and regional climate conditions
- n cost

## Experience

An EPA survey of firms providing IAQ services found that almost half had been providing IAQ diagnostic or mitigation services in non-industrial settings for ten or fewer years.

- n Ask how much IAQ work and what type of IAQ work the firm has done.
- n Have the firm identify the personnel who would be responsible for your case, their specific experience, and related qualifications. Contract only for the services of those individuals, or require approval for substitutions.

## Quality of Interview and Proposal

Several guidelines may be of assistance in hiring IAQ professionals.

***1. Competent professionals will ask questions about your situation to see whether they feel they can offer services that will assist you.***

The causes and potential remedies for indoor air quality problems vary greatly. A firm needs at least a preliminary understanding of the facts about what is going on in your building to evaluate if it has access to the professional skills necessary to address your concerns and to make effective use of its personnel from the outset. Often a multi-disciplinary team of professionals is needed.

***2. The proposal for the investigation should emphasize observations rather than measurements.***

Section 6 describes the four types of information that may need to be gathered in an investigation in order to resolve an indoor air quality problem: the occupant complaints, the HVAC system, pollutant pathways, and pollutant sources. There is also a discussion of the role of monitoring

within an investigation. Non-routine measurements (such as relatively expensive sampling for VOCs) should not be provided without site-specific justification.

**3. The staff responsible for building investigation should have a good understanding of the relationship between IAQ and the building structure, mechanical systems, and human activities.**

For example, lack of adequate ventilation is at least a contributing factor in many indoor air quality problem situations. Evaluating the performance of the ventilation system depends on understanding the interaction between the mechanical system and the human activity within the building.

In some cases building investigators may have accumulated a breadth of knowledge. For example, a mechanical engineer and an industrial hygienist see buildings differently. However, a mechanical engineer with several years of experience in IAQ problem investigations may have seen enough health-related problems to cross the gap; likewise, an industrial hygienist with years of experience studying problems in an office setting may have considerable expertise in HVAC and other building mechanical systems.

Either in the proposal or in discussion, the consultant should:

- n Describe the goal(s), methodology, and sequence of the investigation, the information to be obtained, and the process of hypothesis development and testing, including criteria for decision-making about further data-gathering. The proposal should include an explanation of the need for any proposed measurements. The goal is to reach a successful resolution of the complaints, not simply to generate data.
- n Identify any elements of the work that will require a time commitment from the client's own staff, including information

to be collected by the client.

- n Identify additional tasks (and costs) which are part of solving the IAQ problem but are outside the scope of the contract. Examples might include medical examination of complainants, laboratory fees, and contractor's fees for mitigation work.
- n Describe the schedule, cost, and work product(s), such as a written report, specifications, and plans for mitigation work; supervision of mitigation work; and training program for building staff.
- n Discuss communication between the IAQ professional and the client: How often will the contractor discuss the progress of the work with the client? Who will be notified of test results and other data? Will communications be in writing, by telephone, or face-to-face? Will the consultant meet with building occupants to collect information? Will the consultant meet with occupants to discuss findings if requested to do so?

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## Reputation

There are no Federal regulations covering professional services in the general field of indoor air quality, although some disciplines (e.g., engineers, industrial hygienists) whose practitioners work with IAQ problems have licensing and certification requirements.

Building owners and managers who suspect that they may have a problem with a specific pollutant (such as radon, asbestos, or lead) may be able to obtain assistance from local and State Health Departments. Government agencies and affected industries have developed training programs for contractors who diagnose or mitigate problems with these particular contaminants.

Firms should be asked to provide references from clients who have received comparable services. In exploring refer-

ences, it is useful to ask about long-term follow-up. After the contract was completed, did the contractor remain in contact with the client to ensure that problems did not recur?

### Knowledge of Local Codes and Regional Climate Conditions

Familiarity with State and local regulations and codes helps to avoid problems during mitigation. For example, in making changes to the HVAC system, it is important to conform to local building codes. Heating, cooling, and humidity control needs are different in different geographic regions, and can affect the selection of an appropriate mitigation approach. Getting assurances that all firms under consideration have this knowledge becomes particularly important if it becomes necessary to seek expertise from outside the local area.

### Cost

It is impossible for this document to give specific guidance on the cost of professional services. If projected costs jump suddenly during the investigation process, the consultants should be able to justify that added cost.

The budget will be influenced by a number of factors, including:

- n complexity of the problem
- n size and complexity of the building and its HVAC system(s)
- n quality and extent of recordkeeping by building staff and management
- n type of report or other product required
- n number of meetings required (formal presentations can be quite expensive)
- n air sampling (e.g., use of instruments, laboratory analysis) if required