

Engaging your Hazmat/Industrial Hygiene Consultant Early in the Demolition and Renovation Design Process is Key to Getting Your Project Off to a Good Start

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Older buildings and brownfield sites typically require the services of a hazardous materials consultant or industrial hygienist (IH) to properly identify conditions warranting compliance with EPA and OSHA. More often than not, architectural and engineering project managers wait until after the schematic design phase to engage their hazardous materials/industrial hygiene consultant until they have a better understanding of the project's scope. Why wait? Particularly on a whole building renovation or demolition project. Early involvement helps us to **anticipate** the hazards that require characterization and allows for proper scoping and planning. It also allows the consultant ample time to perform research, review and survey activities. The key to a successful project is to engage your industrial hygienist early and through the following best practices.

Notice to Proceed—Request and Provide Us with Existing and Historic Building Plans and Prior HAZMAT Surveys

From the beginning you should provide your industrial hygienist with all existing plans including original construction and renovation drawings of the building as well as any past hazardous materials (HAZMAT) surveys that were completed. Please be aware that not all HAZMAT surveys are created equally. Let us decide what is useful and what is not. By providing these documents early in the process, your IH can begin reviewing this historical data immediately and **recognize** the hazardous materials that may exist in the building.

We should also get to know the team and each discipline's scope of work. Every discipline will have some impact on the building structure and the IH's scope of work. We should be included in the discussion between architecture, M/E/P, fire protection, structural, civil and geotechnical engineers. A major mistake on project teams is limiting communication between the IH and these key disciplines. Let's say your project involves the renovation of a 1950's-era school cafeteria and kitchen. The IH is told by the architect that the kitchen will be remodeled and that all new floors, ceilings and lighting will be installed. It's easy to think that the scope of work is limited to the kitchen and cafeteria, right? Not in this case. Life safety upgrades were required and without discussing this requirement with the fire protection engineer we wouldn't have known that a sprinkler pipe had to be run from the opposite end of the school to the project location. Therefore, the scope of the project and hazardous materials abatement actually included work in the ceiling of a main corridor through the school.

This is also the ideal time to get to know the owner/end user. For large company, university or other institutional clients, your IH will need to have a conversation with the end user's industrial hygiene/environmental managers so they have a thorough understanding of their process or guidelines that may include hazard control requirements, disposal site regulations, shipping and handling of hazardous materials, etc. and to obtain their EPA ID number for hazardous waste disposal. By having access to the end user's representatives, the IH can better prepare specifications for abatement and ensure that the owner/end user needs are met. If the owner has their own set of specifications that they use in-house it is beneficial for the IH to review their guidelines and format with them. This involvement also helps if the owner/end user has a

preferred list of contractors or vendors that they are expecting to complete the abatement tasks for the project.

Schematic Design (SD)—Let's Get that Survey Started

With few exceptions, every building material in an old building is assumed to contain asbestos or is coated with lead-based paint until it is proven otherwise. So many times the SD narrative goes something like this, "The building was constructed in 1950. Based upon the age of the structure, asbestos, lead in paint, mercury, PCBs, etc. are anticipated throughout. After review of the documents we will conduct testing for..." Through testing we work to rule out hazardous or regulated materials and identify those that require special handling. This takes time. In the case of a whole building renovation or demolition project—don't wait—let's get that **evaluation** survey started.

Unlike our architectural and engineering colleagues who take dimensions and crunch numbers, we are tasked with collecting representative building material samples, submitting those samples for laboratory analysis, waiting for results, compiling the survey data, and generating a report. We lose valuable surveying time if we can't use the few weeks available in the SD phase of the project. Getting in early ensures that we can meet the design development (DD) objectives.

Early involvement further allows your IH to uncover major expenses that could exhaust your budget before you even begin the DD phase. We aren't just looking for asbestos and lead in paint but all hazardous materials conditions that can result in potential health, safety or environmental impact. Nothing short of discovering radio-active concrete should impact your design in this phase (yes, it's happened) and the head start allows for thorough and quality reports to be delivered to the project manager by the deadline.

Design Development (DD)—Give Us Adequate Time to Survey and to Write Quality Reports

The design development phase is where the IH consultant is usually brought in to begin HAZMAT surveys. By now the architect has a set of proposed drawings and a nice rendering of the concept for the building and they are working to flesh out that plan with the aid of the rest of the design team. Demolition plans from all disciplines provide the most valuable information to the IH and where we can fine tune what we have learned about the building and the project scope.

Perhaps it's fair to talk about some hurdles that we encounter including access, testing restrictions and safety. Rarely, does the IH have full access to an occupied building during the normal workday. We want to start scheduling and surveying as early as possible in the design process because we most often have to survey at night or on weekends in occupied buildings. It is imperative that your IH has an opportunity to thoroughly investigate all aspects of the building to ensure a clear identification of any potential hazardous materials.

Destructive testing is necessary at times and is incredibly important to uncovering potential impacts to your project's schedule and budget. Through destructive testing your IH has a better quality of data to help uncover hidden sources of hazardous materials that may be found above ceilings, behind walls and in mechanical chases. We are just peeking through holes cut into the wall or ceiling to evaluate the potential for hazardous materials. Otherwise, we assume asbestos is present behind solid walls and there is a potential for changed condition to exist and a change order.

For roofing projects, either wholesale roof replacement or construction modifications to the roof, destructive testing is unavoidable. Your IH will work with the roofing contractor to collect roofing cores and will take the cores to the lab to be tested. The contractor will patch and repair the location where the sample was taken unless otherwise advised by the client. These core samples are critical to identifying asbestos and may be useful to the architect in determining insulation thickness. Please note that collecting roof cores can void the warranty on a roof so early conversations regarding the potential impact to warranties are vital.

Further, some structures are just unsafe to enter. It's not uncommon for a building structure to be weakened by years of neglect or acts of man or nature. While we will do our best to identify hazardous materials on these structures, please keep in mind that entry may not be possible.

Construction Documents—Sharing Our Specs and Field Reports with the Contractor is Key

When you receive your CD set, it will contain our abatement plans and specifications and it will also include our field survey report. This survey report contains the room-by-room inventory of all materials identified as both hazardous and non-hazardous. Don't be tempted to leave the report out to save printing costs or because of file size limitations. It's one thing to tell the contractor what is hazardous or regulated for bidding purposes but it is another thing when the field superintendent starts the project and he or she sees so many other suspected hazardous materials. This leads to work stoppage, RFIs and delays so please share our field report with the contractor in order to keep the project moving forward.

Construction Administration—We Can Be a Vital Teaming Partner During this Phase

Your IH will conduct a contractor submittal review to look for deficiencies in the abatement contractor's work plan and specifications and to determine whether or not the contractor has deviated from the scope of work. Your IH can also review any alternative abatement methods proposed by the contractor and is valuable in reviewing and advising the project manager on issues revolving around change order requests, quality control and helping to resolve any problems that may arise during the abatement phase. Your IH can conduct periodic site visits to ensure that the abatement work is moving along at a pace to keep on schedule and to avoid major impacts to the project.

An IH's job is to **anticipate, recognize, evaluate** and **control** workplace hazards. The variety and type of hazards encountered on a building renovation or demolition project can vary greatly with the building age, renovation history, current and past use. The earlier we can get involved in the project the better chance we have of achieving our objective and avoiding surprises. Best practices involve working with your IH early in the schematic design phase so your IH can identify potential problems that, if undiscovered, could negatively impact the design and construction of the project. This early involvement will allow your IH to become familiar with each team member's perspective, owner's requirements, perform proper sample collection, provide thorough analysis and prepare better quality reporting.

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