Facilities in a wide range of industries use silos to store powders and other bulk solids. Regardless of the material being stored or the silo design, all storage vessels require regular cleaning to ensure proper material flow and maximum storage capacity.

Regular maintenance, including cleaning, inspection, and repair, can help keep your silo operating efficiently and limit potential liabilities. Proper care can increase your silo’s usable lifespan and minimize big-ticket repair and cleaning costs. Silos that are emptied out regularly and refilled don’t have the same buildup issues as silos that are kept topped off, but every silo can benefit from a regular cleaning schedule.

Cleaning your silo can save you money in several ways. The primary savings are in recovering stagnant material built up inside the vessel. This prevents losing the material and the resources — time, energy, labor, and raw ingredients — that went into it. Depending on your material, cleaning can also prevent degradation or contamination that occurs when material sits too long, reducing or destroying its value.

Whether or not you follow a set schedule, silo cleaning services are inevitable. While some applications, such as foods and beverages, may demand more frequent cleaning intervals, best practices generally suggest cleaning your silo at least once a year. A regular schedule allows for cleaning to be completed at the most convenient time to limit production downtime and ensure continued product quality.

It’s important to consider more than just price when deciding on a cleaning plan. The proposed price doesn’t always offer a clear picture of the costs or what the cleaning company can deliver. The following tips will help you understand what to look for when accepting silo cleaning bids to ensure the most accurate quote and the biggest return on investment.

Understand the cleaning proposal

As with most quotes for services, chances are you started your search for a silo cleaning company by completing an online quote request. Such questionnaires set the groundwork for a project by collecting basic information that helps professionals determine the project’s scope. While these forms vary in length, there are limitations to the amount of detail a questionnaire can provide.

An uptake interview (or follow-up conversation) helps build on these basic questions to paint a clearer picture of the project and allows for a proposal that’s tailored to your silo cleaning requirements. By talking to a company one-on-one, you can better describe any material flow issues and determine possible contingencies. This not only helps the company provide the most accurate proposal possible, it helps you gauge the operation’s technical knowledge.

In any proposal, the biggest variable that needs to be determined is the scope of work. The proposal should outline the scope of work to be completed and include all particulars discussed in the uptake interview and any completed questionnaires. It should also include a breakdown of pricing that clearly outlines everything included in the final figure, such as whether the number includes only labor charges.

Additional charges to look for include:
- per diem (lodging and living expenses) for the crew
- consumables and PPE (personal protective equipment) fees
- emergency response fees
- mileage and mobilization fees
- vehicle charges
- site-specific equipment charges
- any additional premiums

Per diem costs in particular can add up quickly. For example, a standard crew consists of at least three people for safety purposes. On a 40-day project, a daily
per diem of $142 per person would add $17,040 to the final bill. Larger crews and further exclusions of any of these charges can make the final cost an even greater surprise. To help prevent any surprises, look for a proposal that includes lodging rates and other personnel expenses to ensure the company locks in those numbers.

**Plan for contingencies**

While cleaning experts can use the uptake interview and online questionnaire to anticipate possible contingencies, there are always unknowns with any project. Just like with a home renovation, you can’t know what potential problems might be hiding beneath the surface. Unlike itemized charges, contingencies can’t always be anticipated and included in a proposal. While having a regular cleaning, inspection, and maintenance schedule can help keep these unknowns to a minimum, it’s a good idea to plan for contingencies when setting your cleaning budget. If a surprise does arise, particularly if it relates to the silo’s safety and performance, your selected cleaning company should promptly inform you of the problem.

Even the most experienced silo specialist and the most thorough interview can’t anticipate every contingency. Since unknown expenses can come up throughout the scope of work, transparency is key. For this reason, silo cleaning companies bill based on time and materials. This type of billing can make a definitive project price inherently difficult to determine because the proposal isn’t a fixed number. However, this flexibility can be to the client’s benefit.

In fixed project pricing, you have no way of knowing the total expense breakdown. The scope of work can grow over time, and materials pricing is variable. Fixed pricing makes it easy for you to track project expenses line by line based on crew member timesheets, so you know exactly what you’re paying for and won’t risk overpaying for a project.

**Choose appropriate cleaning services**

The cleaning process will vary depending on the cleaning company, the equipment used, and the specific cleaning project. Cleaning companies typically use either manual or mechanical cleaning processes to remove residual stored materials from the silo interior. For manual cleaning, a technician is lowered into the silo’s interior using a specialized harness to remove material buildup by hand. This process is both more time consuming and more dangerous than mechanical conveying. Due to the increased safety risks involved with this cleaning method, OSHA regulates permit-required confined-space training for such manual cleaning processes.

Mechanical dry cleaning uses special equipment, such as whip machines or compressed-air and hose systems, to remove residual material from the silo. Whip machines and compressed-air and hose systems typically eliminate the need for confined-space entry since the equipment is inserted through silo openings to remove material buildup mechanically. A compressed-air and hose system is more effective than whip cleaning, which doesn’t efficiently remove material buildup and can be useless against hardened buildup. While compressed-air and hose systems generally provide more thorough silo cleaning than
When choosing a cleaning company, it’s important to consider the power of the available cleaning equipment since this directly impacts the amount of material buildup the equipment can remove and how long cleanup will take. The faster and more efficiently your silo is cleaned, the greater your return on investment.

Though a cleaning project is not the same as an inspection, the cleaning technicians should notify you of any concerns that warrant a professional inspection. When a cleaning project reveals hidden problems or uncovers concerns, a cleaning crew can provide recommendations for an inspection and repair company. Some cleaning companies may also offer repair services should the need arise, which can help you find an efficient, cost-effective solution and reduce your silo’s downtime.

For further reading
Find more information on this topic in articles listed under “Storage” in Powder and Bulk Engineering’s article index in the December 2016 issue or the Article Archive on PBE’s website, www.powderbulk.com. (All articles listed in the archive are available for free download to registered users.)

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