Owner's Costs of Operating a Ready Mix Concrete Batch Plant

There are few public resources detailing costs of operating a ready mix concrete batch plant. This is frustratingly strange, because not only is concrete everywhere in the world, but it is also the second most consumed material on the planet after water (not to mention an ancient building material and trade). It is often said that the concrete industry is a small industry, and this is true for those that work and live in it. As a result, most management professionals have worked their way up, gaining along the way the experience required to successfully perform their roles. Keeping this experience guarded protects organizational secrets, methods, and advantages. Costs to operate are unique to each operation, but general references of where to look and how to calculate the costs can be a big help to new and existing producers. The following is a brief synopsis of useful experience DHE has gained, and common questions asked during our 40+ years of providing equipment, engineering, and expertise to concrete producers across the USA. While this article is written with a new producer in mind, the information should be useful for anyone interested in learning budgeting for a ready mix operation.

Determining operating costs first requires two key decisions for any ready mix operation, namely target market and location. These are arguably the factors that will most influence the variable and fixed operating costs of your venture, as well as the hard and soft costs of creating a ready mix plant. For example, DOT spec work in Southern California is an entirely different enterprise than selling 5 sack concrete to your local pumping contractor for curb and gutter. Owner/operators will not need to purchase their own ready mix truck fleet to start, where on-site contractors typically will. High profile contracts require the highest quality aggregates, which come at a premium, or they may require lengthy and expensive laboratory testing to get approved.

Location is just as important when calculating costs of operating your batch plant. Some jurisdictions have loose zoning laws, making it easy to get started with a property, while others are very strict. Does the area you are interested in have strict building codes and tight air quality regulations? If so, a used concrete batch plant may be out of the question. Will your operation need to be in an enclosed structure for permitting/zoning reasons? This will limit the type of equipment you will be able to purchase. Will your proposed location require a conditional use permit, or a potential re-zoning? These are costly and lengthy procedures, that many times are out of the owner's control. In addition, proximity to materials suppliers and competition will have a large impact on your business. Increased distance from supply of raw materials will likely increase costs of your operation and will also impact the design of your plant (i.e., increased storage capacity). Competition is worth researching as well. Knowing how your competition operates in busy and slow cycles, what type of market they target, and who their material suppliers are will be beneficial input to your planning and cost-mapping process.

Market and location are "meta-factors" that will dictate much of your operation's potential future costs. Once these decisions are made, you can home in on the fixed, variable, hard, and soft costs of your operation. These costs surface in areas like raw materials, equipment, property, environmental, maintenance, labor, and regulatory. As mentioned above, there is no one-size-fits-all guide to a concrete ready mix operation. There are, however, questions that will more than likely pop up as one dives into these analyses. We have been asked these questions many times, by many producers, in many environments. Some questions that may come up in the planning process are:

What does it cost to build a ready mix concrete batch plant?
This is highly dependent on location, and equipment needs. It is best to break this question down into two components: Hard and Soft costs.

What are hard costs?
Hard costs are the costs that contribute to the physical construction of the batch plant. They consist of things like equipment, site construction, buildings, and property. These can vary greatly between businesses, but you should be able to calculate a rough idea.

What are soft costs?
Soft costs are the costs that are typically not "seen". They consist of things like permits, plant electrical, engineering, freight, and plant erection. Soft costs are trickier than hard costs and are a common area where major budget items can be missed (i.e., batch plant electrical).

What is the material cost to produce a cubic yard of concrete?
As mentioned earlier, the costs in materials varies greatly depending on type of concrete produced, distance to local materials suppliers, current prices of local materials supplier, greater market conditions (fuel prices, cement shortages, etc..). Best practice is to build relationships with multiple local material suppliers, get pricing quotes from them, and compare the pricing and benefits between. It is also a good idea to

verify the quality of the materials supplied. Finding the right admixture supplier is another key component. Many salesmen for admixture companies have existing relationships with aggregate and cement suppliers. They also can be a great resource for help with mix designs, local competition, and technical specifications. Once you have prices for all your required materials, use your mix designs to calculate the expected cost per cubic yard for each mix design. Once you have this calculated, you can project your other costs, such as monthly water usage (assume 1 cubic yard is 35 gallons of water). This allows you to account for the bigger picture of your operation.

What is the cost of production for a cubic yard of concrete?
Like the answer to the question above. The added costs involved with production are the cost of labor, electricity, equipment, fuel, and maintenance. These can be calculated in a multitude of ways. Some will decide to average or amortize out equipment and maintenance costs to get a "per-yard" cost to help get a bigger picture. This is done by taking cost of equipment + maintenance and averaging over the expected useful life of the equipment monthly, then you can figure out the per yard cost each month. Some use a simpler method of just raw materials, labor, fuel, and electricity. Decide which method makes the most sense for you and figure out the total cost to produce a cubic yard of concrete (materials + production cost).

What is the useful life of a concrete batch plant?
CON-E-CO concrete batch plants are designed with a 35–40-year service life.

What is the cost of a concrete batch plant?
Depending on the needs of your business, a concrete batch plant can range between $400,000.00 and $2,000,000. Finding a trusted advisor for your batching equipment supplier is a great way to lessen the costs and workload for your business. As an example, DHE's sales advisors will assist with the following at no extra charge: identify zoning applicability, provide potential equipment layouts on desired properties, include foundation engineering for purchased equipment, ensure minimal erection and electrical installation costs, offer troubleshooting, online resources, 24 hr. availability by phone or email, and more.

How much does batch plant maintenance cost?
A good rule of thumb is to account for 5-10% of the equipment's initial cost per year in maintenance. In our experience, 10% is very conservative number. Some producers like to keep spare parts for anything and everything that may need replacing at some point. Other producers have very strict preventive maintenance schedules, requiring fewer spare parts on the ground. Either way the 5-10% rule is a good starting point.

What does it cost to operate a concrete batch plant?
Pull together your estimated or actual monthly costs for: electricity, labor, water, maintenance, regulatory, and raw materials. Total monthly costs are important. Now divide the monthly total by the number of yards produced in a month. This is your average operating cost per yard.

What is the useful life of a ready mix mixer truck?
Ideally, 7-10 years.

What is the cost of a ready mix mixer truck?
New mixer trucks are around $230,000.00. For a used mixer truck expect to pay about half to three quarters of that.

Any other items?
Keep in mind that you will need to manage returned concrete. Concrete reclaimers are a great option and can provide an ROI, or you can maintain a return pile that gets crushed and hauled away periodically, or you can make blocks to sell. Each of these will have an associated cost. In addition, managing yard water are add additional costs we have not mentioned yet. Having washout pits is a must for any ready mix operation which are a part the site construction cost (a hard cost). Other environmental costs include permitting, fees, wastewater management, stormwater management, and maintaining BACT (best available control technology).

Understanding the operating and start-up costs for your ready mix facility is a continuous process, and ideally one that becomes more accurate over time. To summarize, know your location and target market to determine your business model. Figure out raw material costs while building relationships with local suppliers and find a good admixture salesman. Locate trusted advisors that you can rely on for equipment, plant design, and anything else you may need help with. Though no one can predict the exact day to day operating expenses with certainty, there are best practices, rules of thumb, and tips that can be learned and implemented. Calculate hard, soft, variable, and fixed costs on a monthly, and per yard basis as required. As your business grows and production continues, what were once estimates turn into actuals, allowing you to fine-tune your operations to truly know your costs. Hopefully this article provided new insights or served as a useful refresher, it is our goal to be a high quality resource for our industry in all areas.

As always, DHE, Inc. is available to answer any questions, or provide expertise for any existing or potential future batching operation or new plant project. Please reach out to us at 209.835.2222 to contact a trusted advisor for your next batch plant project. Or browse our concrete industry blog, which includes troubleshooting, past projects, industry news, and other related topics.

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