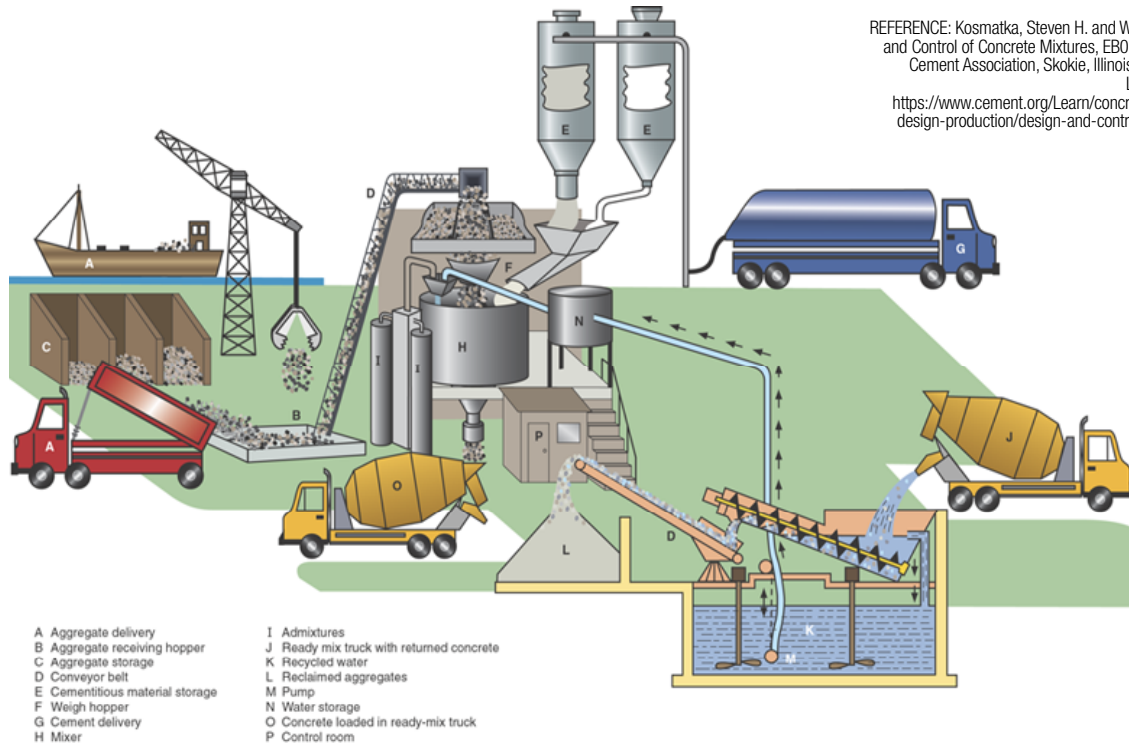


CONCRETE BATCH PLANTS

What you need to know

Concrete batch plants are mixing it up

What do a highway, a bridge, a shopping mall, a hospital and your front sidewalk have in common? They are all built with the materials mixed at a concrete batch plant. Concrete batch plants are simply where cement, water, sand and rocks are combined in batches to produce concrete – the most used building material in the world.



What is cement anyway?

Concrete is a building material made from cement. Cement is a powdered substance made of calcined limestone, clay and silica that, when mixed with water, forms a paste that acts to bind together sand and coarse aggregates. Think of cement as the flour and concrete as the cake. After the cement is produced, it is shipped from the plant in tanker trucks and/or railway cars to the end customer, including concrete batch plant facilities.

Concrete forms very quickly

At a concrete batch plant, an operator designates a specific formula of aggregates, water and admixtures, depending on the end user job, i.e. the type of concrete the project demands. These materials are then either sent through a big central mixer and then to a specialized rotary truck, or directly to the truck for mixing. The combining and mixing of these materials begins the formation of concrete, as the thick mixture hardens quickly. Because of this, it is essential for the truck to discharge the materials within 30-45 minutes, which is why concrete batch plants are located as close as possible to construction projects (although in some cases this duration can be extended).

A sustainable and resilient building material

There are many reasons why concrete is the most used building material in the world.

- **Sustainable** – Concrete structures, such as pavements, have an average service life of 30-50 years.
- **Low maintenance** – Concrete requires little to no maintenance throughout its service life.
- **Safety and reliability** – Concrete does not rust, rot or burn.
- **Resilient** – Concrete is resistant to wind and water and is fire-safe due to its non-combustible nature.
- **Economical** – Concrete uses a minimum number of materials, and casting can be done onsite.



No crushing or blasting onsite

Concrete batch plants are sometimes confused with cement plants. A concrete batch plant is simply where already prepared and sorted ingredients are combined. This significantly limits the nuisance of dust and noise to neighboring communities. The cement, water, sand and rocks that make up concrete are prepared at other facilities and not at a concrete batch plant. On the other hand, a cement plant is where limestone is mined from the earth, crushed and heated to high temperatures in a kiln and then ground to a fine powder.

Rigorously permitted

To protect the community and the environment – including air quality – the Texas Commission on Environmental Quality (TCEQ) has an extensive and rigorous permitting program for concrete batch plants. There are two different types of permits: a Regular Standard Permit and an Enhanced Controls Standard Permit.

Both the Standard and the Enhanced Controls Permits mandate a set of protective measures, including property line protections, dust collector controls, paved roads and setbacks, with the latter generally more stringent. The Standard Permit mandates a 30-day public notice period, during which the public can comment, request a public meeting and/or request a contested case hearing. The Enhanced Controls Permit mandates a 30-day public notice period and a public meeting, with no opportunity for a contested case hearing.



Water usage is limited

Most concrete batch plants recycle rainfall and water that is used onsite. Facilities can and often do utilize storm water and process water collected in onsite systems, repurposing that water back into the production process at the facility for aggregate cooling, dust suppression and wash-down for trucks. Every gallon that is repurposed in this manner translates to water supply savings. A concrete batch plant's municipal water usage can be cut by as much as 50 percent by taking this type of water management approach. This means that an average concrete plant consumes the same (or even less) than 10 neighboring households.

Rigorous air quality standards

TCEQ's air permitting process was developed through extensive data analysis incorporating modeling, sampling, monitoring and toxicological data. TCEQ's assumptions are highly conservative – they go well above and beyond the levels that would be considered to have any potential impacts on human health – to ensure emissions from the plant do not result in a violation of the U.S. EPA's National Ambient Air Quality Standards (NAAQS).



Environmental compliance is a must

TCEQ can and does seek administrative, civil and criminal penalties for environmental violations. The agency has the authority in administrative cases to levy penalties of up to \$25,000 per day, per violation. In some programs, civil judicial cases carry penalties of up to \$25,000 per day, per violation. TCEQ is statutorily required to issue any concrete batch plant or rock crusher operating without an air quality permit fines of up to \$10,000 per day. The agency's enforcement actions are published in multiple places, including in the *Texas Register* and on TCEQ's website.

Making Texas' enormous growth possible

Roughly 1,000 people move to Texas every day. That creates unprecedented demand for the concrete, cement, aggregates and associated materials that go into the construction of necessary infrastructure, such as schools, hospitals, roads, bridges, highways and homes. The materials provided by concrete batch plants support our state's growth-driven demand and are an integral part of this supply chain.

Crystalline silica is not a concern at concrete batch plants

Crystalline silica is the second most common mineral in the earth's crust. In fact, it is the primary constituent of sand on beaches and playgrounds and is a major constituent of rock in mountains. At a concrete batch plant, it is a component of some types of particulate matter. Through its own extensive study and, as stated in TCEQ's *Amendment to the Air Quality Standard Permit for Concrete Batch Plants*, the agency has determined that the estimated crystalline silica concentrations at a batch plant are below TCEQ's health-based air monitoring comparison value, demonstrating that the standard permit is protective of health. Its review of Texas silicosis data affirms that crystalline silica from concrete batch plant production is not an at-risk activity.

TACA

Texas Aggregates & Concrete Association