

TEXAS AGGREGATES, CEMENT AND CONCRETE 101

What you need to know

What does TACA do for Texas?

The Texas Aggregates & Concrete Association (TACA) is the association for the aggregate, cement and concrete industries in Texas. The association represents 75 percent of the state's ready-mix producers, 80 percent of aggregate producers and nearly 100 percent of cement producers.



Aggregate is the foundation of our infrastructure

Aggregate, which is produced at an Aggregate Production Operation (APO), including a pit or quarry, is comprised of sands, gravels and crushed stone and is used in a variety of construction applications. This includes the foundation for roads, bridges, homes and buildings. Sand and gravel are naturally occurring, while crushed rock is a product of blasting and crushing.

Cement is the main ingredient in concrete

Think of cement as the flour to a cake; it is the essential ingredient in concrete. Cement, or Portland cement, is the fine powder that acts as the glue that holds concrete together when mixed with water, sand and aggregates. It is manufactured by heating a precise mixture of finely ground limestone, clay and sand in a rotating kiln to temperatures reaching 2800°F.

This produces cement clinker, an intermediate product, which when it exits the kiln, is cooled and then finely ground to produce the powder we know as cement. Cement reacts with water to cause concrete to harden. Portland cement is not a brand name, but the generic term for the type of cement used in virtually all concrete – just as stainless is a type of steel and sterling a type of silver.

The Cement Process



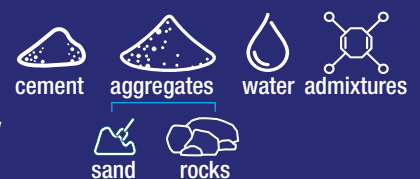
Transporting ready-mix is timely!

Most ready-mix trucks deliver their concrete no more than 30 miles from the plant. This is important, as the mix is a time-sensitive material, with longer distances requiring greater attention to maintaining the quality of the concrete. In addition, by locating a plant near the marketplace, traffic and congestion are decreased, transportation costs are reduced and community construction projects take less time.

Concrete is one of the world's most used building materials

Concrete is a building material made from cement, aggregates (rock and sand), water and admixtures (additives that enhance or modify the properties of concrete). Concrete is one of the oldest, most widely used and versatile building products known to man.

The Concrete Mix



Ready-mix takes it on the road

Instead of batched and mixed on site, ready-mix – also known as ready mixed concrete – is delivered in trucks that agitate and/or mix the concrete on the way to or at the job. Ready-mix concrete is delivered in an unhardened state. The mix of stone and sand aggregate in concrete makes it very strong, which is especially ideal for building roads, driveways, sidewalks, parking lots, home foundations, decks, swimming pools and virtually any kind of building.





Concrete is environmentally friendly

Concrete is sustainable. It builds durable, long-lasting structures that will not rust, rot or burn. In fact, the life span of a concrete building can be double or triple that of other types of materials. Homes built with concrete walls, foundations and floors are highly energy efficient because they take advantage of concrete's inherent thermal mass and ability to absorb and retain heat. This means homeowners can significantly cut their heating and cooling bills.

There are 3 main types of operations

Aggregate Production Operations (APOs)

Aggregate Production Operations (APOs) are where aggregates – sand, gravel and stone – are mined and quarried to be used in the production of the concrete, asphalt and other essential construction materials that build Texas. Blasting is used to break loose the rock, which is then crushed and processed into smaller pieces, sorted and then sold by the ton.

Cement plants

Cement plants are often located adjacent to a quarry where the raw materials are mined and extracted. After the cement is produced, it is shipped from the plant in tanker trucks and/or railway cars.

Concrete batch plants

Concrete batch plants are where cement, water, sand and rocks are combined to produce concrete. This is done batch by batch. After pouring all the materials into a pan or drum, the ingredients are mixed, sent out for delivery and discharged on a job site.

All operations are highly regulated by local, state and federal agencies, including the Texas Environmental Quality Commission (TCEQ).

Texas is one of the most productive aggregate states in the nation

61.8 million cubic yards of ready-mix:

Equal to California and Florida; 16.3% of total US volume (NRMCA)

299.8 million tons of aggregates:

More than #2 California and #3 Florida combined (USGS)

18.3 million tons of cement:

Equal to #2 California and 93% of #3 Florida combined
(Texas Comptroller, USGS)

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Just the facts



Texas grows at approximately
1,000-1,400 people a day.



One lane-mile of a 4-lane
interstate highway takes **38,000
tons of aggregates.**



The average modern home takes
400 tons of aggregates.



16% of U.S. ready-mix concrete
production volume is in Texas.



The annual revenue of the Texas
aggregate, cement and concrete
industries is **more than
\$10 billion**, providing jobs
and much-needed tax revenue
to the state.



More than 15 local, state and
federal agencies regulate the
aggregate, cement and concrete
industries in Texas.

