

ARCHITECTURAL STONE

Continental Cut Stone

Continental Cut Stone is a quarrier and supplier of cut Limestone. They have two main quarries, one which supplies Lueders Limestone and one that supplies Cordova Cream Limestone, two types of limestone found and quarried in Texas. They are located in Florence, Texas and offer a wide range of cuts and finishes. Cut stone can be used for building facades, retaining walls, flooring, and many other applications. *continentalcutstone.com*

ARCHITECTURAL STONE

San Jacinto Materials

San Jacinto Materials is a stone supplier that carries a large supply of stone from north Texas, Colorado, Tennessee, Oklahoma and several other states. Lueders limestone is a local Texas limestone notable for its durability and hardness compared to other limestone. *sjmrocks.com*

BASALT GRAVEL

Blackstar Gravel / Austin Landscaping Supplies

Blackstar Gravel used in Texas roads and highways, as well as in landscaping, is made up of an igneous rock called Basalt. It is primarily found in the Chisos Mountain range and the Rio Grande Valley. Functions very well in patio and pathway applications. *austinlandscapingsupplies.com*

BRICK, TERRACOTTA

Terracotta Brick / Alkusari Stone

Traditional methods and natural beauty combined with contemporary style and customization-- The Terracotta Brick reflects a deep appreciation for hand-work, natural materials and time-honored processes. Created by local artisans, who have carried on their family trades for generations. *alkusaristone.com*

BRICK, CERRA STONE

CerraStone / Elgin Butler

CerraStone is a structural clay brick with an ultra matte ceramic finish. This cost-effective masonry product offers the durability of brick and presents the classic appeal of stone. Available in a variety of sizes and colors, CerraStone offers a unique alternative to natural stone for beautiful wall designs that will last a lifetime. *eliginbutler.com*

BRICK, DRY PRESS

Dry Press Brick / D'Hanis Brick Tile

Dry Press Brick is a traditional method of brick production where clay is compressed into a mold. They are typically much heavier, but of a higher quality than modern extruded bricks. These D'Hanis bricks are particularly useful for matching bricks from old buildings, as they patina nicely.

dhanisbricktile.com

BRICK, GLAZED

Elgin Butler

Glazed Brick are extruded clay, ceramic glazed masonry units for wall applications, structural walls, partition walls, multi-wythe walls or veneers. The ceramic finish is available in many standard and custom colors, and the units offer a durable, permanent, non-fading wall system that has an impervious ceramic glazed face with a high abuse tolerance against impact, abrasion and graffiti. *elginbutler.com*

BRICK VENEER, GLAZED

Architectural Glazed Thin Brick / Elgin Butler

Architectural Glazed Thin Brick is a ½" ceramic glazed thin brick with a textured clay body and is available in 24 unique colors. Ideal for both residential and commercial applications including restaurants, retail and shopping centers, hospitality applications, back splashes and more.

eliginbutler.com

BRICK VENEER

Face Bricks / D'Hanis Brick Tile

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dhanisbricktile.com

CALCITE

Bureau of Economic Geology

Calcite is the most common type of mineral found in Texas geodes. The usual crystal formation is called a dogtooth spar. Most calcite is white, but it can be tinted with impurities. Much of it is fluorescent, and it may appear pink or red under ultraviolet light. The limestone deposits of Central Texas and the Edwards Plateau are home to many calcitefilled geodes.

beg.utexas.edu

COTTON

Raw Cotton / National Council of America

Cotton was first grown in Texas by Spanish missionaries. A report of the missions at San Antonio in 1745 indicates that several thousand pounds of cotton were produced annually, then spun and woven by mission craftsmen. Throughout the 18th and 19th centuries cotton was largely cultivated by enslaved Native Americans and African Americans and later, tenant farmers. The peak of Texas cotton industry was in the 1920s. Today cotton has many applications, notably in the textile industry, but as insulation as well. *cotton.org*

COMPOST

Triple Power Compost / Organics by Gosh

Organics collected in the city of Austin and composted in Elgin, Texas. organicsbygosh.com

COMPRESSED EARTH BLOCK

Compressed Earth Block / Advanced Earthen Construction Technologies

Cement-stabilized BP714 blocks are both density and dimensionally consistent compressed-earth blocks formed by a two-stage compression system. The strength of the blocks can surpass current U.S. compressive standards for concrete blocks. Compressing a mixture of soil and stabilizer make these blocks efficient, using less material per square meter. aectearthblock.com

CONCRETE BLOCK, BURNISHED

Burnished Block / Featherlite Texas

By grinding the top surface off of a block-face to reveal the aggregate matrix within the block, burnished concrete masonry units mimic the look of polished granite at a fraction of the cost. The installation of Burnished Block is similar to that of standard block, except that a sealer is applied afterwards to bring out the color of the aggregates. featherlitetexas.com

CONCRETE BLOCK, SPLITFACE

Splitface Block / Featherlite Texas

Split-face Block is cast concrete that is split apart after being cast to produce a natural textured rock face on the blocks. This is a cost effective option for making stone structures with the look of natural stone. These are produced all around TX in Abilene, El Paso and Lubbock.

featherlitetexas.com

CONCRETE TILE, ORIGAMICRETE

Faceted Concrete Tile / Origamicrete

Origamicrete Tiles are decorative tiles inspired by paper origami. Used as wall texture or back splashes on a residential or commercial scale, each tile's faceted face pairs with its surrounding tiles to create dimensionality and texture on walls. The tiles come in many colors and either in unsealed, matte or gloss sealed concrete. *origamicrete.com*

CORRUGATED METAL

PBR Corrugated Metal / Fabral

Fabral manufactures corrugated metal panels in their Fort Worth, Texas production facility. These panels are typically used in commercial and storage applications. They are waterproof and can be cut to up to 40' lengths.

fabral.com

COUNTERTOP REMNANTS

Countertop Smart

Countertop Smart is an online marketplace for countertop remnants, thereby preventing the waste of these unused materials. *countertopsmart.com*

GRANITE, CRUSHED/DECOMPOSED

Austin Landscape Supplies

Austin Landscaping Supply's granite comes from the Austin Hill Country and has a distinctly pink color. This same granite formation supplied the stones that make up the Texas Capitol facade. *austinlandscapingsupplies.com*

GRANITE

Bureau of Economic Geology

Famously used in the construction of the state capitol building, Texas pink granite comes from a small section of the state. The formation of granite occurs as magma underground slowly cools, creating large crystals of feldspar in the composition. The stone for the capitol was mined in exchange for a railway connecting the quarry to the capitol. *beg.utexas.edu*

GRAVEL, BLACKSTAR

Austin Landscape Supply

Blackstar gravel is a crushed basalt gravel that comes in various sizes, with a dark gray look and very black appearance when wet. This stone is commonly used for all kinds of landscaping. It's uniform color is appealing. *austinlandscapingsupplies.com*

LIMESTONE

Alkusari Stone

Alkusari Limestone is mined in West Texas and can be identified by the distinctive cool, gray hue. The limestone is mined in larger blocks and can be cut down to pavers, used as cladding, or processed to create Alkusari Stone's signature slat panels. *alkusaristone.com*

LIMESTONE AGGREGATE

Austin Landscaping Supplies

Austin Landscaping Supply limestone aggregate comes in a variety of sizes from dust-sized to 1 1/2" pebbles. The limestone comes from Texas and the aggregate and is often used as road base or an underlay for paving. Limestone is alkaline, and so uses in living ponds or environments that need a controlled pH is not recommended. austinlandscapingsupplies.com

MULCH

Austin Landscaping Supplies

Austin Landscaping Supply manufactures and mixes a variety of different mulches. These mulches include ones made from local Texas trees like Ashe Juniper, also know as Cedar, and mulches mixed with organic compost made with Austin Dillo Dirt, a soil made of biosolids. austinlandscapingsupplies.com

MULCH

Organics by Gosh

Various mulches created from local reclaimed wood/timber in Elgin, Texas.

organicsbygosh.com

PAPER BLOCK/BRICK

Greenstar Blox / Mason Greenstar

Mason Greenstar, based in Mason, Texas produces sustainable building materials comprised of "papercrete": a composition of recycled cellulose, cement, and a blend of organic additives. This "papercrete" mixture is cast into Greenstar BLOX, Greenstar BRIX, Greenstar CMU, Greenstar ICF, and other products. masongreenstar.com

PAVERS

Pavers / D'Hanis Brick Tile

These turf pavers are made to accommodate vegetation and are made of clay, as opposed to concrete, like most turf pavers. They are meant to provide a grass option for areas that require light vehicular traffic, like fire lanes and maintenance drives. The clay pavers absorb water better, and help prevent the force of a tire from killing the turf. dhanisbricktile.com

POOL COPING D'Hanis Brick Tile

D'Hanis red terracotta bull nose tiles are used for pool copings as well as steps and entryways. They have the same finish as their terracotta floor tiles and come in 4"x9"x2.25", 4"x12"x2.25", and 4"x8"x1.5". *dhanisbricktile.com*

POTTING MIX

Organics by Gosh

This bagged topsoil is a blend of 70% class two sandy loam and 30% mature and stable compost. This general purpose landscape mix is rich with nutrients and great for a wide range of plantings. *organicsbygosh.com*

RECLAIMED LUMBER

Harvest Lumber Co

Harvest Lumber Company is a sustainable saw mill and live edge wood retailer, selling high quality lumber harvested from felled trees in Austin TX urban area. harvestlumberco.com

RECLAIMED LUMBER

Longleaf Pine / Berdoll Sawmill

Longleaf Pine is a heavily protected species in Texas. After tremendous deforestation, only 1.4% of the trees remain. Longleaf pine is the most durable of the softwoods. At one point Long Leaf pine was the most desired timber for every type of construction from roofs to bridges, to siding, and furniture. The hardiness of longleaf pine make the timber especially desirable for flooring. All Longleaf pine in new construction is reclaimed wood and is primarily from Industrial-Era buildings. *berdollsawmill.com*

RIVER COBBLE

Austin Landscpaing Supplies

Llano River Cobbles are from the Llano river area made up of several distinctive rocks such as quartz, granite, flint, and gravel. Llano collectively is a lighter color rock that ranges from smooth to sharp in shape. Llano is commonly used as a decorative landscape rock *austinlandscapingsupplies.com*

SAND

Concrete Sand / Austin Sand & Gravel

Collection of various aggregates mined in Texas for use in concrete construction. Texas leads the United States in cement and sand mining.

SANDSTONE

Bureau of Economic Geology

Sandstone is composed of sand and sand-sized minerals. A relatively soft stone with even texture, sandstone has many architectural applications. The low absorption rate, high compression strength, and pleasing appearance makes it widely desirable for cladding and floors. The various hues come in a spectrum of colors ranging from orange-red, to dark brown, to yellow and tan. *beg.utexas.edu*

SERPENTINE

Bureau of Economic Geology

Serpentine minerals have been used ornamentally in architecture for thousands of years. It is used mainly as a decorative stone and in art objects, personal adornment and sculpture. Serpentine has historically been used as a natural source of magnesium and asbestos. These formations in South Texas can be found adjacent to oil fields. The name "serpentine" is derived from the green-color, like that of a serpant.

beg.utexas.edu

SHOU SUGI BAN

Cypress Wood, Tiger Burn, Sikkenns / Delta Mlllworks

Delta Millworks is an Austin, Texas-based miller that uses sustainablysourced and reclaimed woods. They fabricate wood for flooring, siding, paneling, cladding, and custom uses and are able to provide custom char finishes.

deltamillworks.com

SOAPSTONE

Bureau of Economic Geology

Soapstone has been used for thousands of years becasue it is a soft rock and is able to absorb and radiate heat with great efficiency. This natural stone is similar to granite or quartzite and it is chemically inert, which means chemicals can't damage it. It is often used in both indoor and outdoor applications.

STONE PANEL

StoneLite / Stone Panels International

StoneLite is a thin stone veneer bonded onto an aluminum honeycomb with a waterproof membrane in between. It is 80% lighter than stone and any type of stone can be used to create StoneLite. Their manufacturing facilitiy is located in Marble Falls, Texas. *stonepanels.com*

STONE PANEL

Stone Slat Panel / Alkusari Stone

Alkusari is a stone quarrier and processor. Their quarry is located in Bertram, Texas where they process locally quarried and imported stones. Their stone slat panels are made from quarried stone that they process and cut small vertical veins on the surface. Slabs are 3/4" thick and come in 12"x24" and 12"x48" dimensions. *alkusaristone.com*

SURFACE WOOD SLAB, ELM

American Elm / Berdoll Sawmill

American Elm share many charachteristics with Cedar Elm. It is typically unfavorable for dimensional lumber due to it's succeptibility to insects and disease. The grain structure can make this wood difficult to work with. Planing, especially can create undesired fuzziness. The wood is moderately priced and is often used for boxes, baskets, furniture, veneer and paper products. *berdollsawmill.com*

SURFACE WOOD SLAB, ASH Ash / Berdoll Sawmill

Ash has similar qualities to Oak in that it has light wood with straight and relatively regular grain. Like oak, Ash is moderately perishable and susceptible to insects and decay and is reasonably priced. Ash is an excellent wood for handtools, flooring, millwork and boxes/crates. It also performs well with steam bending. *berdollsawmill.com*

SURFACE WOOD SLAB, OSAGE ORANGE

Bois d' Arc or Osage Orange / Berdoll Sawmill Bois d' Arc is French for "Bow-wood" and refers to this native-Texan tree's charachteristic hardiness once commonly used for bows and arrows within Native American populations. This 40-foot tree has a distinctive yellow wood and is commonly used in natural dyes to acheive bright, canary yellows. This hard wood performs in well furniture and hand tool applications. *berdollsawmill.com*

SURFACE WOOD SLAB, CEDAR ELM Cedar Elm / Berdoll Sawmill

Cedar Elm is typically unfavorable for dimensional lumber due to it's succeptibility to insects and disease. The grain structure can make this wood difficult to work with. Planing, especially can create undesired fuzziness. The wood is moderately priced and is often used for boxes, baskets, furniture, veneer and paper products.

berdollsawmill.com

SURFACE WOOD SLAB, RED CEDAR Eastern Red Cedar / Berdoll Sawmill

The Eastern Red Cedar reaches nearly 100-115 feet in height and is one of seven native Juniper species in Texas. The drought-resistant Red Cedar is distintive for it's rich aroma is often used to deter insects. Common uses include cladding, siding, roofing, and structural posts, as well as furniture pieces. The striking red wood makes this material quite easy to identify and is commonly seen in rustic applications. *berdollsawmill.com*

SURFACE WOOD SLAB, CHERRY

Escarpment Cherry / Berdoll Sawmill

Escarpment black cherry is found on slopes, canyons, and woods in the Edwards Plateau in central Texas. Black cherry wood is valued in furniture and panel crafting and the tree and fruits are important for wildlife food and shelter. This wood is moderately heavy and strong and does not warp or split. *berdollsawmill.com*

SURFACE WOOD SLAB, LEMON CEDAR

Lemon Cedar / Berdoll Sawmill

Lemon Cedar, also known as Lemon Cypress, is quite small compared to other juniper species with a max height of 16'. Lumber from this tree is somewhat unusual. For decades the tree has been quite popular for interior and exterior ornamental plantings. A lemon scent and vibrant yellow-green folliage make this tree distinctive. *berdollsawmill.com*

SURFACE WOOD SLAB, LIVE OAK

Live Oak / Berdoll Sawmill

Live Oak is particularily hardy and dense for an oak species and can be found all over Texas. This wood's resiliance to decay make Live Oak especially good for boatbuilding. The USS Constitution was built from Live Oak and was known as "Old Ironsides"--- a testament to this wood species' hardiness. Other notable applications for Live Oak include cabinetry, flooring, furniture, interior trim, barrels and veneer. *berdollsawmill.com*

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SURFACE WOOD SLAB, POST OAK

Post Oak / Berdoll Sawmill

Post Oak Savannah trees are small but mighty and a staple of the texas landscape. It is a hard wood that is great for fence posts, furniture, cabinetry and flooring. It is a part of the White Oak family but has a unique grain. *berdollsawmill.com*

SURFACE WOOD SLAB, MESQUITE Mesquite / Berdoll Sawmill

Mesquite is an unusual, twisting tree with deep tap roots found primarily in South Texas. While the species is unfavorable to ranchers and agriculturalists (known as "water hogs"), the wood is championed by many woodworkers. Incredibly hard, and stable, mesquite wood has a rich, warm finish that is comparable to Cherry. Mesquite wood is a good natural dye stuff and can produce shades of gold to beige. Mesquite wood at Berdoll Sawmill is salvaged from South Texas landclearings of agricultural and building development. *berdollsawmill.com*

SURFACE WOOD SLAB, PECAN

Pecan / Berdoll Sawmill

Pecan is well-used as lumber and is an ideal choice for furniture. Pecan Lumber at Berdoll is primarily made up of heartwood and comes in a variety of options including pieces with live-edge. *berdollsawmill.com*

SURFACE WOOD SLAB, WALNUT

Texas Black Walnut / Berdoll Sawmill

Texas Black Walnut grow most heavily in the north east corner of the state, but can be found throughout Central Texas. Black Walnut wood is rich and distinctive dark brown and is best utilized as lumber. Texas Black Walnut Trees can reach over 100 feet tall and can be over 36" in diameter.

berdollsawmill.com

TERRAZZO

Terrazzo Palmora / Alkusari Stone

An aqueous mixture of recycled, crushed stone and traditional Portland cement. Terrazzo Palmora is produced in a custom, large-block format. *alkusaristone.com*

TILE, STURCTURAL

Structural Clay Tile / D'Hanis Brick Tile

This cladding can be used in plastered and unplastered walls for exterior and interior use on load and non-loadbearing walls. This clay tile can be used without a CMU backer and does not need to be sealed for waterproofing. The tiles range in size from 4"x5"x12" to 8"x8"x12". *dhanisbricktile.com*

TILE, FLOOR

Floor Tile / D'Hanis Brick Tile

D'Hanis terracota tiles are used as flooring in outdoor and indoor environments. They can sustain heavy pedestrian traffic and function best in moderate weathering climates. *dhanisbricktile.com*

TILE, ROOF

Roof Tile / D'Hanis Brick Tile

These terracota clay roof tiles come in flat interlocking tiles or as 16" barrel tiles. They function best in moderate weathering climates and come in a variety of red to brown tones. *dhanisbricktile.com*

TILE, SOLAR

Solar Screen Tile / Elgin Butler

Solar Screen Tile is a clay masonry screen wall system that combines privacy with security, day lighting with shade, and air flow for natural ventilation. Solar Screen Tile does not require refinishing, thus saving money and energy over the life of the project—an ideal solution for environment-friendly projects. Available in unglazed and glazed finishes.

elginbutler.com

TILE, SOLAR

Solar Tile / D'Hanis Brick Tile

Solar tile, also known as Breezeblocks, are terracota tiles that allow for ventilation of spaces while still provide enclosure and screening. They work for both indoor and outdoor use. They come in two sizes: 8"x8"x5" and 8"x8"x8".

dhanisbricktile.com

TILE, STRUCTURAL GLAZED Elgin Butler

Structural Glazed Tile (SGT), commonly referred to as Glazed Block, are ceramic glazed hollow masonry units for loadbearing and nonloadbearing wall applications. SGT can be used as structural walls, partition walls, multi-wythe walls or veneers. The ceramic finish is available in wide palette of colors or can be custom ordered. *elginbutler.com*

TILE VEENER, GLAZED EB Thin Brick / Elgin Butler

EB Thin Brick offers same look and durability as standard masonry, but without the extra footings and weight limitations. Available in 60 standard colors, EB Thin Brick is a ³⁄₄" ceramic glazed thin brick with a fine clay body that is durable for both interior and exterior applications. *elginbutler.com*

WHEAT STRAW LUMBER

Agriboard / Agriboard Industries

Agriboard is an innovative, medium density fiber board made from compressed wheat straw and timber framing. This system eliminates construction site waste, is built in 4-6 weeks, is blast resistant, has up to a 2.5 hour fire rating, is F5 wind approved, insect and mold resistant, has high thermal mass, and is 7 times more air-tight than conventional construction.

agriboard.com

WOOL

Mohair / Duncan Ranch

Wool cultivation in Texas began at the Spanish Missions in San Antonio in the early 18th century. At the industry's peak in 1965, Texas became the leading producer of natural fibers in the United States. At this time, Texas produced 20% of the nation's wool and 90% of the nation's mohair. Once referred to as the "Natural Fiber Capital of the World" Texas maintains steady mohair and wool production even though wool processing plants and mills are dwindling. Wool has several architectural applications, most notably as textile and insulation. Wool is unique for it's breathability, natural moisture-wicking and antimicrobial properties



Collection Description

Materials in Texas is a survey of regional building materials and resources. Green building initiatives such as LEED US Green Building Council and Architecture 2030, emphasise the importance of incorporating local materials in minimizing the embodied carbon of new consturction and renovation; material transportation alone accounts for 16.5% of the embodied carbon in the built environment. Furthermore, the use of regionally sourced, assembled, or otherwise manufactured materials contributes to the healthy development of local economies, creates opportunities to honor and sustain local building ecologies, advocates for the community interest necessary to maintain sustainable building life-cycles, and delivers meaningful connections to site geography.

Introduction (See figure 1², 2³, and 3⁴)

The landscape of Texas is vast and diverse. While human geography divides Texas into North, East, South, West, Central Texas as well as the Panhandle-- the state geography is categorized into five distinct regions: the Gulf Coastal Plains, Interior Lowlands, Great Plains, and Basin and Range Province.⁵ From the plains of Amarillo, to the coast of Brownsville, Texas accounts for 7% of the geographic area of the United States-- a total of 268,581 square miles-- with 10 ecoregions, the most of any other state in the U.S.⁶

Materials in Texas illustrates the variety of resources within our vast state. Resources are divided into several categories as they relate to the building industry: (I.) Timber and Wood, (II.) Minerals, Stone, and Clay, (III.) Petroleum and Polymers, (IV.) Miscellaneous Organics and Agriculture, and (V.) Metal. Material samples are presented in a variety of compositions from raw to minimally processed, mechanically and chemically engineered products, to architectural systems.

Timber and Wood (See figure 4^7 and figure 5^8)

The Pineywood region of Texas is the main source of lumber in the state⁹. 80% of the money generated through harvesting and milling Texas forests comes from the Pines in East Texas. This region is part of a much larger pine-hardwood forest that extends from Louisiana, through Texas and into Arkansas and Oklahoma.¹⁰ Commercially harvested pine species include: Longleaf Pine, Shortleaf Pine, Loblolly Pine, and Slash Pine.¹¹ Timber production boomed with the construction of the Trans-Atlantic Railroad and peaked in 1907.¹² Since the 2008 recession, production has steadily increased every year. Today, popular applications include decking and framing. The pine harvested is primarily used for dimensional lumber, plywood, and other structural materials. Pine wood pulp is used for paperboard, chipboard, MDF board and as a filler in numerous other construction products. A variety of Oak species contribute to the second largest volume of timber production, with Sweetgum, Hickory, and Ash far behind. While dimensional lumber is most often associated with wood harvesting, a multitude of other products exist in architectural application including surface slabs, veneer, pallets, mulches, engineered lumber, and various pulp and paper products. Additional wood types include Maple, Cedar, Mesquite, Cypress, Pecan, and Walnut. An extensive, interactive map of contemporary timber production and milling can be found online via the Directory of Forest Products Industries available through Texas A&M Forest Service.¹³

Minerals, Stone, and Clay (See figure 6¹⁴)

The mineral with the greatest economic influence in Texas is cement, valued at \$2 billion annually and accounting for nearly 90% of industrial mineral value along with gravel, crushed stone, and construction sand.¹⁵ Texas is the largest producer of crushed stone in the United States. Shallow marine environments during the Cambrian-Ordovician. Permian, and Cretaceous periods and exposed areas of Mesoproterozoic plate tectonic processes make Texas an ideal region for this type of mineral extraction. The extensive carbonate strata that form the Edwards Plateau is essential to the cement, crushed stone, and lime industries. According to Geology of Texas Industrial Minerals, "Industrial rocks and minerals are produced in essentially all 254 counties in Texas, principally related to local construction and industrial activities."65 Dimensional stone production is especially relevant to Texas with several types of stone including most prominently limestone and granite. Texas is a leading producer of clay products in the United States. Most of Texas clay production is used for brickmaking and other building materials like tile and roofing. Other clay products create fillers and coating agents in rubber, paper, and ceramics. Gypsum is another substantial mineral resource in Texas which can be applied to the manufacturing of gypsum board. Talc production is implemented in the use of various fillers for rubber, paper, and ceramic products.

Agriculture and Miscellaneous Organics (See figure 4^{17} and figure 5^{18})

Roughly 86% of Texas land is used for some form of agricultural production. Texas has the highest number of cattle and calves and accounts for 13% of all US cattle. ¹⁹ In the US, Texas is the top producer of cotton, hay, sheep, goats, mohair, and horses.



Agriculture and Miscellaneous Organics Cont'

Large-scale Texas agriculture largely started in the 19th century with the continuation of the slave-based cotton plantation farming system that proliferated in the South. In the late 19th century, cattle driving expanded after the Texas Rangers forcefully banished the local Comanche, Apache and Caddo tribes in Texas. In the early 1900's cultivated crops continued to expand, with a growth in corn, rice, and cotton.

Byproducts from agriculture and cattle production can end up in surprising materials with architectural applications. Cotton has immediate uses for insulation and textiles. Corn byproducts can be used for Bioplastics. Sheep and Goat hair can be used for fabrics and other textiles. There are less obvious applications. For example, hemp hurd, the ground up stalks from hemp agriculture can be mixed with a binder to form Hempcrete. Livestock production and processing produces large amounts of animal fat, which contain various compounds used in producing building materials. For example Stearic and Oleic acid from animal fat is an ingredient in drywall. Casein, from cows milk, is an ingredient in rubber polymers. Slip agents in animal fat are used in petroleum plastic manufacturing and Glycerin. An interactive online index of agricultural data by country for the state of Texas is administered by Purdue University and can be found at https://www.hort. purdue.edu/newcrop/cropmap/texas/default.html.

Petroleum (See figure 7²⁰)

Texas is the leading producer of oil and natural gas in the United States, accounting for nearly 40% of all stateside production.²¹ Petrochemicals, in addition to natural gas and coal, are the basis of nearly all polymers. The conversion and synthesis of these natural products is what creates plastic.²² Apart from supplying the fuel we need to keep the US mobile, the petrochemical industry in Texas creates parts used in nearly everything from semiconductors to auto plastics to building materials like paint, pipes, ducts, windows, insulation, and roofing as well as, mattresses, furniture and various surface goods. The Texas freeze of early 2021 highlighted just how important the Texas petroleum industry is with global manufacturers like Honda, Toyota, PPG all citing significant delays in production due to short supply of chemicals primarily sourced in the state. The shortages in petrochemical-based products like siding, adhesive, and insulation created a surcharge in building materials that has gone so far as to impact the cost of housing and construction for all of North America.²³ The Gulf Coast of Texas is essential to the production of PET, polystyrene, polyurethane, and other plastic materials. And, with the recent fracking boom, Gulf-Coast refineries including

those in Texas have doubled, making the U.S. the leading supplier for petro-chemical products. The future of sustainable production is up for dispute. According to, the Building & Construction Plastics Market Size, Share & Trends Analysis Report By Product (PVC, Polyurethane), By Application (Pipes & Ducts, Windows, Insulation, Roofing), And Segment Forecasts (2018 -2025), products such as PET, low-density polyethylene (LDPE), polyvinyl chloride (PVC), polypropylene (PP), high-density polyethylene (HDPE), and polystyrene (PS) are recyclable, durable, and exhibit high strength, are likely to increase their utilization in the construction of green buildings due to their potential to be recycled. ²⁴

Metals (See figure 6)

Texas has over 680 mines in the state; most are allocated to copper, uranium and silver.²⁵ Iron ores were mined beginning in the mid 19th century with the production of charcoal furnaces. ²⁶ Production significantly ramped up with the onset of World War II, increasing demand for iron and steel. Most steel fabrication in the state is based in East Texas, but many can be found throughout the state today. A state-incentivized boom grew the market in Houston in the 1960s, and by 1980 nearly 10% of all U.S. Steel production occurred in the state. At that time most steel production was allocated to large, tubular pipes and drills for oil production. The industry slowed significantly until the late 2010s, when reduced tariffs created a favorable environment for growth. Metal has numerous architectural and design applications, most notably as structural framing. Steel and aluminum can also be found in vast mechanical engineering applications, windows, doors, roofing, and various other decorative applications.

Conclusion

Materials in Texas demonstrates merely a small fraction of the technical and environmental prowess of the most geographically diverse state in the nation. It marks the beginning of an effort to understand where and how our materials make their way into our buildings; our intent is for the collection to grow over time. Through awareness of local resources, designers have the power to make decisions that create more sustainable, efficient, and economical communities that celebrate and contribute to the vast manufacturing, refining, and innovative capabilities of the state.



SOURCES

(1) Francesco Pomponi, Catherine De Wolf, and Alice Moncaster, eds., EMBODIED CARBON IN BUILDINGS: Measurement, Management, and Mitigation (Cham, Switzerland: SPRINGER INTERNATIONAL PU, 2019).

(2) Gould, F. W., Hoffman, G. O., and Rechenthin, C. A. 1960. Vegetational areas of Texas, Texas A & M University. Texas Agricultural Experiment Station, Leaflet No. 492

(3) Land Resource Map of Texas [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.

(4) Geological Map of Texas [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.

(5) "Texas Environment," Texas Almanac (Texas State Historical Association, 2018), https://texasalmanac.com/index.php?q=topics/environment/environment.

(6) "Texas Ecoregions." Texas Parks & Wildlife Department. Texas Parks and Wildlife Department, October 8, 2020. https://tpwd.texas.gov/education/hunter-education/online-course/wildlife-conservation/texas-ecoregions

(7) Schattenberg, P. (2020, July 28). Texas A&M AGRILIFE maps Out Texas' WORKING LANDS. Retrieved April 23, 2021, from https://agrilifetoday.tamu.edu/2020/07/24/texas-am-agrilife-maps-out-texas-working-lands/

(8) Vegetation cover Types of Texas. Map of Texas [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.

(9) Adams, Sumner, "A Look at the Texas Lumber Industry," TimberTown (TimberTown, March 30, 2021), https://www. timbertown.com/a-look-at-the-texas-lumber-industry/.

(10) "Texas Ecoregions" (see above.)

(11) "Aldridge Sawmill: The Forest Lands." Texas Beyond History. Texas Beyond History. Accessed April 23, 2021. https://www.texasbeyondhistory.net/aldridge/forest.html.

(12) Adams (see above.)

(13) Texas forest Info. (n.d.). Retrieved April 23, 2021, from https://texasforestinfo.tamu.edu/

(14) Industrial Minerals of Texas Map [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.

(15) Kyle, J. (2011). Geology of Texas Industrial Minerals. Austin Geological Society Bulletin, 7.

(16) Kyle (see above.)

(17) Schattenberg, P. (2020, July 28). Texas A&M AGRILIFE maps Out Texas' WORKING LANDS. Retrieved April 23, 2021, from https://agrilifetoday.tamu.edu/2020/07/24/texas-am-agrilife-maps-out-texas-working-lands/

(18) Vegetation cover Types of Texas. Map of Texas [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.

(19) Melo, Jay, and Berhard. "5 Surprising Things That Have Cow Parts in Them." Neatorama, September 26, 2013. https://www.neatorama.com/2013/09/24/5-Surprising-Things-That-Have-Cow-Parts-in-Them/.

(20) Oil and Gas Map of Texas. Map of Texas [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.



SOURCES CONT.

(21) Texas producing more oil, natural gas than rest of world. (2019, July 13). Times Record News. Texas producing more oil, natural gas than rest of world.

(22) Plastics. American Chemistry Council. (n.d.). https://www.americanchemistry.com/chemistry-in-america/chemistry-in-everyday-products/plastics#:~:text=Plastics%2C%20also%20called%20polymers%2C%20are,silicon%20atom%2C%20 are%20an%20exception.

(23) Matthews, C. M., Hufford, A., & Eaton, C. (2021, March 17). Texas freeze Triggers Global Plastics shortage. The Wall Street Journal. https://www.wsj.com/articles/one-week-texas-freeze-seen-triggering-monthslong-plastics-shortage-11615973401.

(24) Grand View Research. (n.d.). Global building and Construction plastics market TRENDS report, 2025. Global Building And Construction Plastics Market Trends Report, 2025. https://www.grandviewresearch.com/industry-analysis/building-construction-plastics-market.

(25) Mining in Texas. The Diggings™. (n.d.). https://thediggings.com/usa/texas#:~:text=The%20most%20commonly%20 listed%20primary,Texas%20has%2024%20prospect%20mines.





Figure 1 : Gould Ecoregions of Texas. Gould, F. W., Hoffman, G. O., and Rechenthin, G. A. 1960. Vegetational areas of Texas, Texas A & M University. Texas Agricultural Experiment Station, Leaflet No. 492





Figure 2 : Land Resource Map of Texas [Map]. (1999). In *The University of Texas at Austin Tobin Map* Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.





Figure 3 : Geologic Map of Texas [Map]. (1992). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.





Figure 4 : Schattenberg, P. (2020, July 28). Texas A&M AGRiLLIFE maps Out Teaas' WORKING LANDS. Retrieved April 23, 2021, from https://agrilifetoday. tamu.edu/2020/07/24/texas-am-agrilife-maps-out-texas-working-lands/





Figure 5 : Vegetation Cover Types of Texas. Map of Texas [Map]. (2000). In The University of Texas at Austin Tabin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.





Figure 6 : Industrial Minerals of Texas. Map of Texas [Map]. (2008). In The University of Texas at Austin Tobin Map Collection. Austin, TC: Bureau of Economic Geology: Maps of Texas.





Figure 7 : Oil and Gas Map of Texas [Map]. (2005). In The University of Texas at Austin Tobin Map Collection. Austin, TX: Bureau of Economic Geology: Maps of Texas.