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Landscape soil Las Vegas - Organic ranking improvements

1. Organic ranking improvements
2. Google organic search

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Landscape soil Las Vegas - Organic ranking improvements

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Moreover, incredibly, furthermore, ultimately, incredibly."

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guarantee outstanding outdoor transformations."

About concrete

This article is about the construction material. For other uses, see Concrete (disambiguation). Not to be confused with cement, grout, mortar, or plaster.

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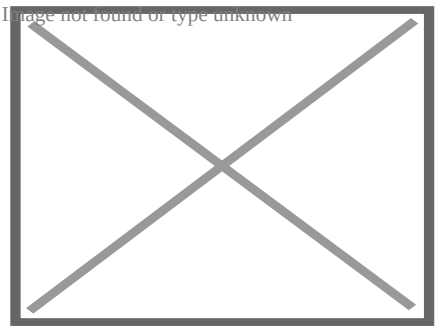


A single concrete block, as used for construction

Concrete is a composite material composed of aggregate bonded together with a fluid cement that cures to a solid over time. Concrete is the second-most-used substance in the world after water,[1] and is the most widely used building material.[2] Concrete is the most manufactured material on Earth.[3]

When aggregate is mixed with dry Portland cement and water, the mixture forms a fluid slurry that can be poured and molded into shape. The cement reacts with the water through a process called hydration[4] that hardens it over several hours to form a solid matrix that binds the materials together into a durable stone-like material that has many uses.[5] This time allows concrete to not only be cast in forms, but also to have a variety of tooled processes performed. The hydration process is exothermic, which means that ambient temperature plays a significant role in how long it takes concrete to set. Often, additives (such as pozzolans or superplasticizers) are included in the mixture to improve the physical properties of the wet mix, delay or accelerate the curing time, or otherwise modify the finished material. Most structural concrete is poured with reinforcing materials (such as steel rebar) embedded to provide tensile strength, yielding reinforced concrete.

Before the invention of Portland cement in the early 1800s, lime-based cement binders, such as lime putty, were often used. The overwhelming majority of concretes are produced using Portland cement, but sometimes with other hydraulic cements, such as calcium aluminate cement.[6][7] Many other non-cementitious types of concrete exist with other methods of binding aggregate together, including asphalt concrete with a bitumen binder, which is frequently used for road surfaces, and polymer concretes that use polymers as a binder.

Concrete is distinct from mortar.[8] Whereas concrete is itself a building material, and contains both coarse (large) and fine (small) aggregate particles, mortar contains only fine aggregates and is mainly used as a bonding agent to hold bricks, tiles and other masonry units together.[9]

Grout is another material associated with concrete and cement. It also does not contain coarse aggregates and is usually either pourable or thixotropic, and is used to fill gaps between masonry components or coarse aggregate which has already been put in place. Some methods of concrete manufacture and repair involve pumping grout into the gaps to make up a solid mass *in situ*.

Etymology

[edit]

The word concrete comes from the Latin word "*concretus*" (meaning compact or condensed),[10] the perfect passive participle of "*concrescere*", from "*con-*" (together) and "*crescere*" (to grow).

History

[edit]

Ancient times

[edit]

Concrete floors were found in the royal palace of Tiryns, Greece, which dates roughly to 1400 to 1200 BC.[11][12] Lime mortars were used in Greece, such as in Crete and Cyprus, in 800 BC. The Assyrian Jerwan Aqueduct (688 BC) made use of waterproof concrete.[13] Concrete was used for construction in many ancient structures.[14]

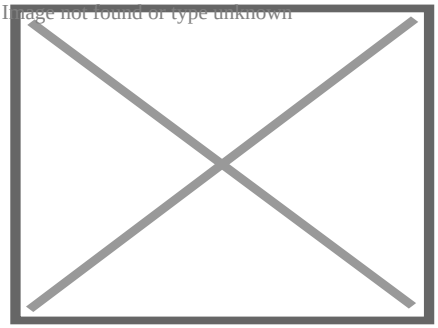
Mayan concrete at the ruins of Uxmal (AD 850–925) is referenced in *Incidents of Travel in the Yucatán* by John L. Stephens. "The roof is flat and had been covered with cement". "The floors were cement, in some places hard, but, by long exposure, broken, and now crumbling under the feet." "But throughout the wall was solid, and consisting of large stones imbedded in mortar, almost as hard as rock."

Small-scale production of concrete-like materials was pioneered by the Nabatean traders who occupied and controlled a series of oases and developed a small empire in the regions of southern Syria and northern Jordan from the 4th century BC. They discovered the advantages of hydraulic lime, with some self-cementing properties, by 700 BC. They built kilns to supply mortar for the construction of rubble masonry houses, concrete floors, and underground waterproof cisterns. They kept the cisterns secret as these enabled the Nabataeans to thrive in the desert.[15] Some of these structures survive to this day.[15]

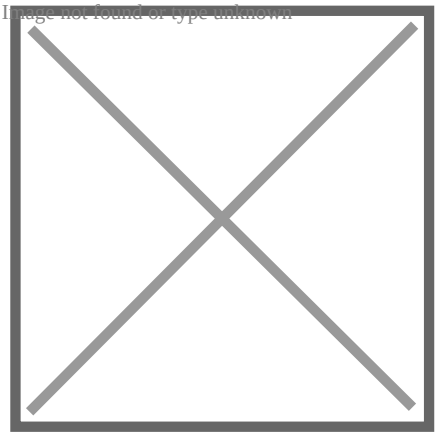
In the Ancient Egyptian and later Roman eras, builders discovered that adding volcanic ash to lime allowed the mix to set underwater. They discovered the pozzolanic reaction.[16]

Classical era

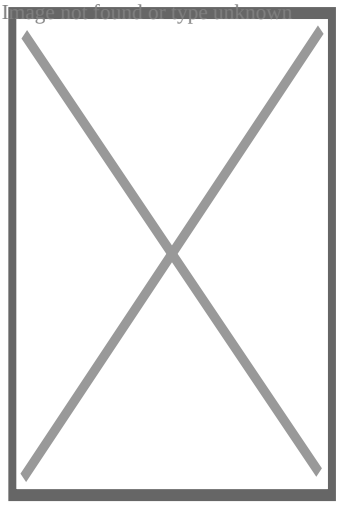
[edit]



Exterior of the Roman Pantheon, finished 128 AD, the largest unreinforced concrete dome in the world.[17]



Interior of the Pantheon dome, seen from beneath. The concrete for the coffered dome was laid on moulds, mounted on temporary scaffolding.



Opus caementicium exposed in a characteristic Roman arch. In contrast to modern concrete structures, the concrete used in Roman buildings was usually covered with brick or stone.

The Romans used concrete extensively from 300 BC to AD 476.[18] During the Roman Empire, Roman concrete (or *opus caementicium*) was made from quicklime, pozzolana and an aggregate of pumice.[19] Its widespread use in many Roman structures, a key event in the history of architecture termed the Roman architectural revolution, freed Roman construction from the restrictions of stone and brick materials. It enabled revolutionary new designs in terms of both structural complexity and dimension.[20] The Colosseum in Rome was built largely of concrete, and the Pantheon has the world's largest unreinforced concrete dome.[21]

> Concrete, as the Romans knew it, was a new and revolutionary material. Laid in the shape of arches, vaults and domes, it quickly hardened into a rigid mass, free from many of the internal thrusts and strains that troubled the builders of similar structures in stone or brick.[22]

Modern tests show that *opus caementicium* had a similar compressive strength to modern Portland-cement concrete (c. 200 kg/cm^2 [20 MPa; 2,800 psi]).[23] However, due to the absence of reinforcement, its tensile strength was far lower than modern reinforced concrete, and its mode of application also differed:[24]

> Modern structural concrete differs from Roman concrete in two important details. First, its mix consistency is fluid and homogeneous, allowing it to be poured into forms rather than requiring hand-layering together with the placement of aggregate, which, in Roman practice, often consisted of rubble. Second, integral reinforcing steel gives modern concrete assemblies great strength in tension, whereas Roman concrete could depend only upon the strength of the concrete bonding to resist tension.[25]

The long-term durability of Roman concrete structures has been found to be due to its use of pyroclastic (volcanic) rock and ash, whereby the crystallization of strätlingite (a complex calcium aluminosilicate hydrate)[26] and the coalescence of this and similar calcium–aluminium-silicate–hydrate cementing binders helped give the concrete a greater degree of fracture resistance even in seismically active environments.[27] Roman concrete is significantly more resistant to erosion by seawater than modern concrete; it used pyroclastic materials which react with seawater to form Al-tobermorite crystals over time.[28][29] The use of hot mixing and the presence of lime clasts have been proposed to give the concrete a self-healing ability, where cracks that form become filled with calcite that prevents the crack from spreading.[30][31]

The widespread use of concrete in many Roman structures ensured that many survive to the present day. The Baths of Caracalla in Rome are just one example. Many Roman aqueducts and bridges, such as the magnificent Pont du Gard in southern France, have masonry cladding on a concrete core, as does the dome of the Pantheon.

Middle Ages

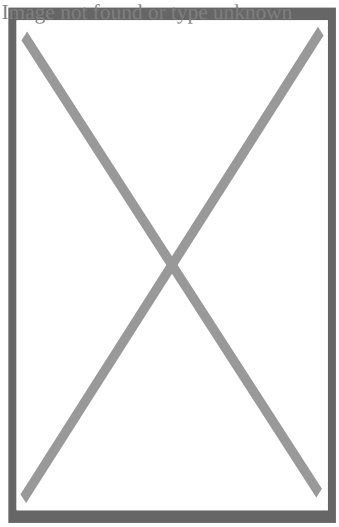
[edit]

After the Roman Empire, the use of burned lime and pozzolana was greatly reduced. Low kiln temperatures in the burning of lime, lack of pozzolana, and poor mixing all contributed to a decline in the quality of concrete and mortar. From the 11th century, the increased use of stone in church and castle construction led to an increased demand for mortar. Quality began to improve in the 12th century through better grinding and sieving. Medieval lime mortars and concretes were non-hydraulic and were used for binding masonry, "hearting" (binding rubble masonry cores) and foundations. Bartholomaeus Anglicus in his *De proprietatibus rerum* (1240) describes the making of mortar. In an English translation from 1397, it reads "lyme ... is a stone brent; by medlynge thereof with sonde and water sement is made". From the 14th century, the quality of mortar was again excellent, but only from the 17th century was pozzolana commonly added.[32]

The *Canal du Midi* was built using concrete in 1670.[33]

Industrial era

[edit]



Smeaton's Tower in Devon, England

Perhaps the greatest step forward in the modern use of concrete was Smeaton's Tower, built by British engineer John Smeaton in Devon, England, between 1756 and 1759. This third Eddystone Lighthouse pioneered the use of hydraulic lime in concrete, using pebbles and powdered brick as aggregate.[34]

A method for producing Portland cement was developed in England and patented by Joseph Aspdin in 1824.[35] Aspdin chose the name for its similarity to Portland stone, which was

quarried on the Isle of Portland in Dorset, England. His son William continued developments into the 1840s, earning him recognition for the development of "modern" Portland cement.[36]

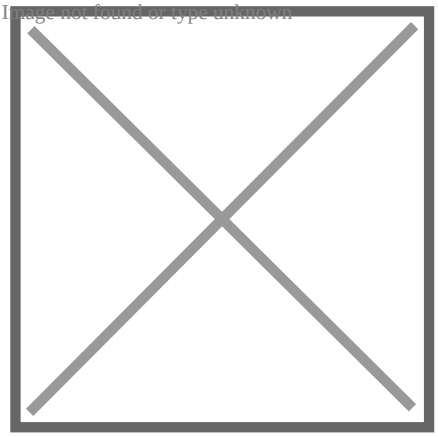
Reinforced concrete was invented in 1849 by Joseph Monier.[37] and the first reinforced concrete house was built by François Coignet[38] in 1853. The first concrete reinforced bridge was designed and built by Joseph Monier in 1875.[39]

Prestressed concrete and post-tensioned concrete were pioneered by Eugène Freyssinet, a French structural and civil engineer. Concrete components or structures are compressed by tendon cables during, or after, their fabrication in order to strengthen them against tensile forces developing when put in service. Freyssinet patented the technique on 2 October 1928.[40]

Composition

[edit]

Concrete is an artificial composite material, comprising a matrix of cementitious binder (typically Portland cement paste or asphalt) and a dispersed phase or "filler" of aggregate (typically a rocky material, loose stones, and sand). The binder "glues" the filler together to form a synthetic conglomerate.[41] Many types of concrete are available, determined by the formulations of binders and the types of aggregate used to suit the application of the engineered material. These variables determine strength and density, as well as chemical and thermal resistance of the finished product.



Cross section of a concrete railway sleeper below a rail

Construction aggregates consist of large chunks of material in a concrete mix, generally a coarse gravel or crushed rocks such as limestone, or granite, along with finer materials such as sand.

Cement paste, most commonly made of Portland cement, is the most prevalent kind of concrete binder. For cementitious binders, water is mixed with the dry cement powder and aggregate, which produces a semi-liquid slurry (paste) that can be shaped, typically by pouring

it into a form. The concrete solidifies and hardens through a chemical process called hydration. The water reacts with the cement, which bonds the other components together, creating a robust, stone-like material. Other cementitious materials, such as fly ash and slag cement, are sometimes added—either pre-blended with the cement or directly as a concrete component—and become a part of the binder for the aggregate.[42] Fly ash and slag can enhance some properties of concrete such as fresh properties and durability.[42] Alternatively, other materials can also be used as a concrete binder: the most prevalent substitute is asphalt, which is used as the binder in asphalt concrete.

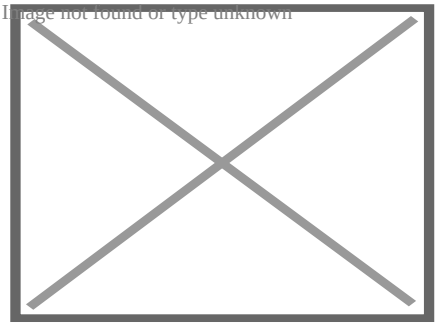
Admixtures are added to modify the cure rate or properties of the material. Mineral admixtures use recycled materials as concrete ingredients. Conspicuous materials include fly ash, a by-product of coal-fired power plants; ground granulated blast furnace slag, a by-product of steelmaking; and silica fume, a by-product of industrial electric arc furnaces.

Structures employing Portland cement concrete usually include steel reinforcement because this type of concrete can be formulated with high compressive strength, but always has lower tensile strength. Therefore, it is usually reinforced with materials that are strong in tension, typically steel rebar.

The *mix design* depends on the type of structure being built, how the concrete is mixed and delivered, and how it is placed to form the structure.

Cement

[edit]
Main article: Cement



Several tons of bagged cement, about two minutes of output from a 10,000 ton per day cement kiln

Portland cement is the most common type of cement in general usage. It is a basic ingredient of concrete, mortar, and many plasters.[43] It consists of a mixture of calcium silicates (alite, belite), aluminates and ferrites—compounds, which will react with water. Portland cement and similar materials are made by heating limestone (a source of calcium) with clay or shale (a source of silicon, aluminium and iron) and grinding this product (called *clinker*) with a source of sulfate (most commonly gypsum).

Cement kilns are extremely large, complex, and inherently dusty industrial installations. Of the various ingredients used to produce a given quantity of concrete, the cement is the most energetically expensive. Even complex and efficient kilns require 3.3 to 3.6 gigajoules of energy to produce a ton of clinker and then grind it into cement. Many kilns can be fueled with difficult-to-dispose-of wastes, the most common being used tires. The extremely high temperatures and long periods of time at those temperatures allows cement kilns to efficiently and completely burn even difficult-to-use fuels.[44] The five major compounds of calcium silicates and aluminates comprising Portland cement range from 5 to 50% in weight.

Curing

[edit]

Combining water with a cementitious material forms a cement paste by the process of hydration. The cement paste glues the aggregate together, fills voids within it, and makes it flow more freely.[45]

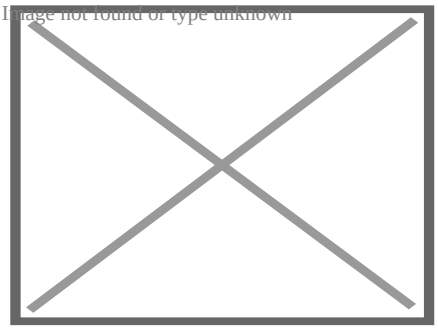
As stated by Abrams' law, a lower water-to-cement ratio yields a stronger, more durable concrete, whereas more water gives a freer-flowing concrete with a higher slump.[46] The hydration of cement involves many concurrent reactions. The process involves polymerization, the interlinking of the silicates and aluminate components as well as their bonding to sand and gravel particles to form a solid mass.[47] One illustrative conversion is the hydration of tricalcium silicate:

> Cement chemist notation: $C_3S + H \rightarrow C\text{-}S\text{-}H + CH + heat$
> Standard notation: $Ca_3SiO_5 + H_2O \rightarrow$ CaOÃƒÆ’Ã†â€™Ãƒâ€šÃ‚Â£ÃƒÆ’Ã¢â‚¬Â¬Ã‚ ÃƒÂ¢Ã¢â€šÂ¬Ã¢â€žÂ¢ÃƒÆ’Ã¢â‚¬Â¬Ã¡ÃƒÂ¢Ã¢â€šÃ‚Â»SiO$_2$ÃƒÆ’Ã†â€™Ãƒâ€šÃ‚Â£ÃƒÆ’Ã¢â‚¬Â¬Ã‚ ÃƒÂ¢Ã¢â€šÂ¬Ã¢â€žÂ¢ÃƒÆ’Ã¢â‚¬Â¬Ã¡ÃƒÂ¢Ã¢â€šÃ‚Â»H$_2$O (gel) + $Ca(OH)_2$ + heat
> Balanced: $2\ Ca_3SiO_5 + 7\ H_2O \rightarrow 3$ CaOÃƒÆ’Ã†â€™Ãƒâ€šÃ‚Â£ÃƒÆ’Ã¢â‚¬Â¬Ã‚ ÃƒÂ¢Ã¢â€šÂ¬Ã¢â€žÂ¢ÃƒÆ’Ã¢â‚¬Â¬Ã¡ÃƒÂ¢Ã¢â€šÃ‚Â»2 SiO$_2$ ÃƒÆ’Ã†â€™Ãƒâ€šÃ‚Â£ÃƒÆ’Ã¢â‚¬Â¬Ã‚ ÃƒÂ¢Ã¢â€šÂ¬Ã¢â€žÂ¢ÃƒÆ’Ã¢â‚¬Â¬Ã¡ÃƒÂ¢Ã¢â€šÃ‚Â»4 H$_2$O (gel) + 3 $Ca(OH)_2$ + heat
> (approximately as the exact ratios of CaO, SiO_2 and H_2O in C-S-H can vary)[47]

The hydration (curing) of cement is irreversible.[48]

Aggregates

[edit]
Main article: Construction aggregate



Crushed stone aggregates

Fine and coarse aggregates make up the bulk of a concrete mixture. Sand, natural gravel, and crushed stone are used mainly for this purpose. Recycled aggregates (from construction, demolition, and excavation waste) are increasingly used as partial replacements for natural aggregates, while a number of manufactured aggregates, including air-cooled blast furnace slag and bottom ash are also permitted.

The size distribution of the aggregate determines how much binder is required. Aggregate with a very even size distribution has the biggest gaps whereas adding aggregate with smaller particles tends to fill these gaps. The binder must fill the gaps between the aggregate as well as paste the surfaces of the aggregate together, and is typically the most expensive component. Thus, variation in sizes of the aggregate reduces the cost of concrete.[49] The aggregate is nearly always stronger than the binder, so its use does not negatively affect the strength of the concrete.

Redistribution of aggregates after compaction often creates non-homogeneity due to the influence of vibration. This can lead to strength gradients.[50]

Decorative stones such as quartzite, small river stones or crushed glass are sometimes added to the surface of concrete for a decorative "exposed aggregate" finish, popular among landscape designers.

Admixtures

[edit]

Admixtures are materials in the form of powder or fluids that are added to the concrete to give it certain characteristics not obtainable with plain concrete mixes. Admixtures are defined as additions "made as the concrete mix is being prepared".[51] The most common admixtures are retarders and accelerators. In normal use, admixture dosages are less than 5% by mass of cement and are added to the concrete at the time of batching/mixing.[52] (See § Production below.) The common types of admixtures[53] are as follows:

- Accelerators speed up the hydration (hardening) of the concrete. Typical materials used are calcium chloride, calcium nitrate and sodium nitrate. However, use of chlorides may cause corrosion in steel reinforcing and is prohibited in some countries, so that nitrates

may be favored, even though they are less effective than the chloride salt. Accelerating admixtures are especially useful for modifying the properties of concrete in cold weather.
- Air entraining agents add and entrain tiny air bubbles in the concrete, which reduces damage during freeze-thaw cycles, increasing durability. However, entrained air entails a tradeoff with strength, as each 1% of air may decrease compressive strength by 5%.[54] If too much air becomes trapped in the concrete as a result of the mixing process, defoamers can be used to encourage the air bubble to agglomerate, rise to the surface of the wet concrete and then disperse.
- Bonding agents are used to create a bond between old and new concrete (typically a type of polymer) with wide temperature tolerance and corrosion resistance.
- Corrosion inhibitors are used to minimize the corrosion of steel and steel bars in concrete.
- Crystalline admixtures are typically added during batching of the concrete to lower permeability. The reaction takes place when exposed to water and un-hydrated cement particles to form insoluble needle-shaped crystals, which fill capillary pores and micro-cracks in the concrete to block pathways for water and waterborne contaminates. Concrete with crystalline admixture can expect to self-seal as constant exposure to water will continuously initiate crystallization to ensure permanent waterproof protection.
- Pigments can be used to change the color of concrete, for aesthetics.
- Plasticizers increase the workability of plastic, or "fresh", concrete, allowing it to be placed more easily, with less consolidating effort. A typical plasticizer is lignosulfonate. Plasticizers can be used to reduce the water content of a concrete while maintaining workability and are sometimes called water-reducers due to this use. Such treatment improves its strength and durability characteristics.
- Superplasticizers (also called high-range water-reducers) are a class of plasticizers that have fewer deleterious effects and can be used to increase workability more than is practical with traditional plasticizers. Superplasticizers are used to increase compressive strength. It increases the workability of the concrete and lowers the need for water content by 15–30%.
- Pumping aids improve pumpability, thicken the paste and reduce separation and bleeding.
- Retarders slow the hydration of concrete and are used in large or difficult pours where partial setting is undesirable before completion of the pour. Typical retarders include sugar, sodium gluconate, citric acid, and tartaric acid.[55]

Mineral admixtures and blended cements

[edit]

Components of cement:
comparison of chemical and physical characteristics[a][56][57][58]

Property	Portland cement	Siliceous[b] fly ash	Calcareous[c] fly ash	Slag cement	Silica fume

Proportion by mass (%)	SiO_2	21.9	52	35	35	85–97
	Al_2O_3	6.9	23	18	12	—
	Fe_2O_3	3	11	6	1	—
	CaO	63	5	21	40	< 1
	MgO	2.5	—	—	—	—
	SO_3	1.7	—	—	—	—
Specific surface (m^2/kg) [d]		370	420	420	400	15,000 – 30,000
Specific gravity		3.15	2.38	2.65	2.94	2.22
General purpose		Primary binder	Cement replacement	Cement replacement	Cement replacement	Property enhancer

1. ^ Values shown are approximate: those of a specific material may vary.
2. ^ ASTM C618 Class F
3. ^ ASTM C618 Class C
4. ^ Specific surface measurements for silica fume by nitrogen adsorption (BET) method, others by air permeability method (Blaine).

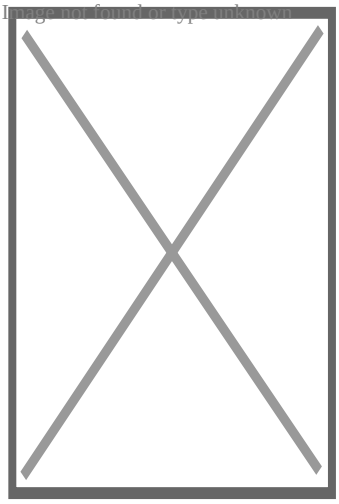
Inorganic materials that have pozzolanic or latent hydraulic properties, these very fine-grained materials are added to the concrete mix to improve the properties of concrete (mineral admixtures),[52] or as a replacement for Portland cement (blended cements).[59] Products which incorporate limestone, fly ash, blast furnace slag, and other useful materials with pozzolanic properties into the mix, are being tested and used. These developments are ever growing in relevance to minimize the impacts caused by cement use, notorious for being one of the largest producers (at about 5 to 10%) of global greenhouse gas emissions.[60] The use of alternative materials also is capable of lowering costs, improving concrete properties, and recycling wastes, the latest being relevant for circular economy aspects of the construction industry, whose demand is ever growing with greater impacts on raw material extraction, waste generation and landfill practices.

- Fly ash: A by-product of coal-fired electric generating plants, it is used to partially replace Portland cement (by up to 60% by mass). The properties of fly ash depend on the type of coal burnt. In general, siliceous fly ash is pozzolanic, while calcareous fly ash has latent hydraulic properties.[61]
- Ground granulated blast furnace slag (GGBFS or GGBS): A by-product of steel production is used to partially replace Portland cement (by up to 80% by mass). It has latent hydraulic properties.[62]

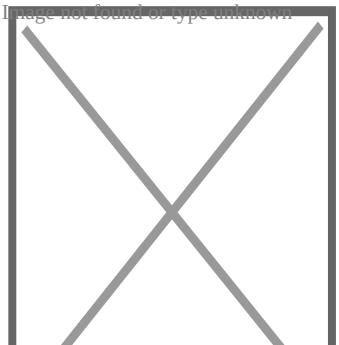
- Silica fume: A by-product of the production of silicon and ferrosilicon alloys. Silica fume is similar to fly ash, but has a particle size 100 times smaller. This results in a higher surface-to-volume ratio and a much faster pozzolanic reaction. Silica fume is used to increase strength and durability of concrete, but generally requires the use of superplasticizers for workability.[63]
- High reactivity metakaolin (HRM): Metakaolin produces concrete with strength and durability similar to concrete made with silica fume. While silica fume is usually dark gray or black in color, high-reactivity metakaolin is usually bright white in color, making it the preferred choice for architectural concrete where appearance is important.
- Carbon nanofibers can be added to concrete to enhance compressive strength and gain a higher Young's modulus, and also to improve the electrical properties required for strain monitoring, damage evaluation and self-health monitoring of concrete. Carbon fiber has many advantages in terms of mechanical and electrical properties (e.g., higher strength) and self-monitoring behavior due to the high tensile strength and high electrical conductivity.[64]
- Carbon products have been added to make concrete electrically conductive, for deicing purposes.[65]
- New research from Japan's University of Kitakyushu shows that a washed and dried recycled mix of used diapers can be an environmental solution to producing less landfill and using less sand in concrete production. A model home was built in Indonesia to test the strength and durability of the new diaper-cement composite.[66]

Production

[edit]



Concrete plant showing a concrete mixer being filled from ingredient silos



Concrete mixing plant in Birmingham, Alabama, in 1936

Concrete production is the process of mixing together the various ingredients—water, aggregate, cement, and any additives—to produce concrete. Concrete production is time-sensitive. Once the ingredients are mixed, workers must put the concrete in place before it hardens. In modern usage, most concrete production takes place in a large type of industrial facility called a concrete plant, or often a batch plant. The usual method of placement is casting in formwork, which holds the mix in shape until it has set enough to hold its shape unaided.

Concrete plants come in two main types, ready-mix plants and central mix plants. A ready-mix plant blends all of the solid ingredients, while a central mix does the same but adds water. A central-mix plant offers more precise control of the concrete quality. Central mix plants must be close to the work site where the concrete will be used, since hydration begins at the plant.

A concrete plant consists of large hoppers for storage of various ingredients like cement, storage for bulk ingredients like aggregate and water, mechanisms for the addition of various additives and amendments, machinery to accurately weigh, move, and mix some or all of those ingredients, and facilities to dispense the mixed concrete, often to a concrete mixer truck.

Modern concrete is usually prepared as a viscous fluid, so that it may be poured into forms. The forms are containers that define the desired shape. Concrete formwork can be prepared in several ways, such as slip forming and steel plate construction. Alternatively, concrete can be mixed into dryer, non-fluid forms and used in factory settings to manufacture precast concrete products.

Interruption in pouring the concrete can cause the initially placed material to begin to set before the next batch is added on top. This creates a horizontal plane of weakness called a *cold joint* between the two batches.[67] Once the mix is where it should be, the curing process must be controlled to ensure that the concrete attains the desired attributes. During concrete preparation, various technical details may affect the quality and nature of the product.

Design mix

[edit]

Design mix ratios are decided by an engineer after analyzing the properties of the specific ingredients being used. Instead of using a 'nominal mix' of 1 part cement, 2 parts sand, and 4 parts aggregate, a civil engineer will custom-design a concrete mix to exactly meet the requirements of the site and conditions, setting material ratios and often designing an admixture package to fine-tune the properties or increase the performance envelope of the mix. Design-mix concrete can have very broad specifications that cannot be met with more basic nominal mixes, but the involvement of the engineer often increases the cost of the concrete mix.

Concrete mixes are primarily divided into nominal mix, standard mix and design mix.

Nominal mix ratios are given in volume of \displaystyle \textCement : Sand : Aggregate. Nominal mixes are a simple, fast way of getting a basic idea of the properties of the finished concrete without having to perform testing in advance.

Various governing bodies (such as British Standards) define nominal mix ratios into a number of grades, usually ranging from lower compressive strength to higher compressive strength. The grades usually indicate the 28-day cure strength.[68]

Mixing

[edit]
See also: Volumetric concrete mixer and Concrete mixer

Thorough mixing is essential to produce uniform, high-quality concrete.

Separate paste mixing has shown that the mixing of cement and water into a paste before combining these materials with aggregates can increase the compressive strength of the resulting concrete.[69] The paste is generally mixed in a *high-speed*, shear-type mixer at a w/c (water to cement ratio) of 0.30 to 0.45 by mass. The cement paste premix may include admixtures such as accelerators or retarders, superplasticizers, pigments, or silica fume. The premixed paste is then blended with aggregates and any remaining batch water and final mixing is completed in conventional concrete mixing equipment.[70]

Resonant acoustic mixing has also been found effective in producing ultra-high performance cementitious materials, as it produces a dense matrix with low porosity.[71]

Sample analysis—workability

[edit]
Main article: Concrete slump test

Concrete floor of a parking garage being placed

Pouring and smoothing out concrete at Palisades Park in Washington, DC

Workability is the ability of a fresh (plastic) concrete mix to fill the form/mold properly with the desired work (pouring, pumping, spreading, tamping, vibration) and without reducing the concrete's quality. Workability depends on water content, aggregate (shape and size distribution), cementitious content and age (level of hydration) and can be modified by adding chemical admixtures, like superplasticizer. Raising the water content or adding chemical admixtures increases concrete workability. Excessive water leads to increased bleeding or segregation of aggregates (when the cement and aggregates start to separate), with the resulting concrete having reduced quality. Changes in gradation can also affect workability of the concrete, although a wide range of gradation can be used for various applications.[72][73] An undesirable gradation can mean using a large aggregate that is too large for the size of the formwork, or which has too few smaller aggregate grades to serve to fill the gaps between the larger grades, or using too little or too much sand for the same reason, or using too little water, or too much cement, or even using jagged crushed stone instead of smoother round aggregate such as pebbles. Any combination of these factors and others may result in a mix which is too harsh, i.e., which does not flow or spread out smoothly, is difficult to get into the formwork, and which is difficult to surface finish.[74]

Workability can be measured by the concrete slump test, a simple measure of the plasticity of a fresh batch of concrete following the ASTM C 143 or EN 12350-2 test standards. Slump is normally measured by filling an "Abrams cone" with a sample from a fresh batch of concrete. The cone is placed with the wide end down onto a level, non-absorptive surface. It is then filled in three layers of equal volume, with each layer being tamped with a steel rod to consolidate the layer. When the cone is carefully lifted off, the enclosed material slumps a certain amount, owing to gravity. A relatively dry sample slumps very little, having a slump value of one or two inches (25 or 50 mm) out of one foot (300 mm). A relatively wet concrete sample may slump as much as eight inches. Workability can also be measured by the flow table test.

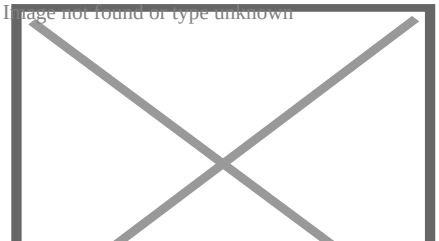
Slump can be increased by addition of chemical admixtures such as plasticizer or superplasticizer without changing the water-cement ratio.[75] Some other admixtures, especially air-entraining admixture, can increase the slump of a mix.

High-flow concrete, like self-consolidating concrete, is tested by other flow-measuring methods. One of these methods includes placing the cone on the narrow end and observing how the mix flows through the cone while it is gradually lifted.

After mixing, concrete is a fluid and can be pumped to the location where needed.

Curing

[edit]



A concrete slab being kept hydrated during water curing by submersion (ponding)

Maintaining optimal conditions for cement hydration

[edit]

Concrete must be kept moist during curing in order to achieve optimal strength and durability.[76] During curing hydration occurs, allowing calcium-silicate hydrate (C-S-H) to form. Over 90% of a mix's final strength is typically reached within four weeks, with the remaining 10% achieved over years or even decades.[77] The conversion of calcium hydroxide in the concrete into calcium carbonate from absorption of CO_2 over several decades further strengthens the concrete and makes it more resistant to damage. This carbonation reaction, however, lowers the pH of the cement pore solution and can corrode the reinforcement bars.

Hydration and hardening of concrete during the first three days is critical. Abnormally fast drying and shrinkage due to factors such as evaporation from wind during placement may lead to increased tensile stresses at a time when it has not yet gained sufficient strength, resulting in greater shrinkage cracking. The early strength of the concrete can be increased if it is kept damp during the curing process. Minimizing stress prior to curing minimizes cracking. High-early-strength concrete is designed to hydrate faster, often by increased use of cement that increases shrinkage and cracking. The strength of concrete changes (increases) for up to three years. It depends on cross-section dimension of elements and conditions of structure exploitation.[50] Addition of short-cut polymer fibers can improve (reduce) shrinkage-induced stresses during curing and increase early and ultimate compression strength.[78]

Properly curing concrete leads to increased strength and lower permeability and avoids cracking where the surface dries out prematurely. Care must also be taken to avoid freezing or overheating due to the exothermic setting of cement. Improper curing can cause spalling, reduced strength, poor abrasion resistance and cracking.

Curing techniques avoiding water loss by evaporation

[edit]

During the curing period, concrete is ideally maintained at controlled temperature and humidity. To ensure full hydration during curing, concrete slabs are often sprayed with "curing compounds" that create a water-retaining film over the concrete. Typical films are made of wax or related hydrophobic compounds. After the concrete is sufficiently cured, the film is allowed to abrade from the concrete through normal use.[79]

Traditional conditions for curing involve spraying or ponding the concrete surface with water. The adjacent picture shows one of many ways to achieve this, ponding—submerging setting concrete in water and wrapping in plastic to prevent dehydration. Additional common curing

methods include wet burlap and plastic sheeting covering the fresh concrete.

For higher-strength applications, accelerated curing techniques may be applied to the concrete. A common technique involves heating the poured concrete with steam, which serves to both keep it damp and raise the temperature so that the hydration process proceeds more quickly and more thoroughly.

Alternative types

[edit]
Main article: Types of concrete

Asphalt

[edit]
Main article: Asphalt concrete

Asphalt concrete (commonly called *asphalt*,[80] *blacktop*, or *pavement* in North America, and *tarmac*, *bitumen macadam*, or *rolled asphalt* in the United Kingdom and Ireland) is a composite material commonly used to surface roads, parking lots, airports, as well as the core of embankment dams.[81] Asphalt mixtures have been used in pavement construction since the beginning of the twentieth century.[82] It consists of mineral aggregate bound together with asphalt, laid in layers, and compacted. The process was refined and enhanced by Belgian inventor and U.S. immigrant Edward De Smedt.[83]

The terms *asphalt* (or *asphaltic*) *concrete*, *bituminous asphalt concrete*, and *bituminous mixture* are typically used only in engineering and construction documents, which define concrete as any composite material composed of mineral aggregate adhered with a binder. The abbreviation, *AC*, is sometimes used for *asphalt concrete* but can also denote *asphalt content* or *asphalt cement*, referring to the liquid asphalt portion of the composite material.

Graphene enhanced concrete

[edit]

Graphene enhanced concretes are standard designs of concrete mixes, except that during the cement-mixing or production process, a small amount of chemically engineered graphene (typically < 0.5% by weight) is added.[84][85] These enhanced graphene concretes are designed around the concrete application.

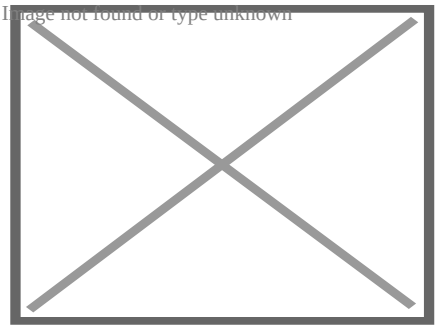
Microbial

[edit]

Bacteria such as *Bacillus pasteurii*, *Bacillus pseudofirmus*, *Bacillus cohnii*, *Sporosarcina pasteuri*, and *Arthrobacter crystallopoietes* increase the compression strength of concrete through their biomass. However some forms of bacteria can also be concrete-destroying.[86] Bacillus sp. CT-5. can reduce corrosion of reinforcement in reinforced concrete by up to four times. *Sporosarcina pasteurii* reduces water and chloride permeability. *B. pasteurii* increases resistance to acid.[87] *Bacillus pasteurii* and *B. sphaericuscan* induce calcium carbonate precipitation in the surface of cracks, adding compression strength.[88]

Nanoconcrete

[edit]



Decorative plate made of Nano concrete with High-Energy Mixing (HEM)

Nanoconcrete (also spelled "nano concrete"' or "nano-concrete") is a class of materials that contains Portland cement particles that are no greater than 100 ?m[89] and particles of silica no greater than 500 ?m, which fill voids that would otherwise occur in normal concrete, thereby substantially increasing the material's strength.[90] It is widely used in foot and highway bridges where high flexural and compressive strength are indicated.[88]

Pervious

[edit]
Main article: Pervious concrete

Pervious concrete is a mix of specially graded coarse aggregate, cement, water, and little-to-no fine aggregates. This concrete is also known as "no-fines" or porous concrete. Mixing the ingredients in a carefully controlled process creates a paste that coats and bonds the aggregate particles. The hardened concrete contains interconnected air voids totaling approximately 15 to 25 percent. Water runs through the voids in the pavement to the soil underneath. Air entrainment admixtures are often used in freeze-thaw climates to minimize the possibility of frost damage. Pervious concrete also permits rainwater to filter through roads and parking lots, to recharge aquifers, instead of contributing to runoff and flooding.[91]

Polymer

[edit]
Main article: Polymer concrete

Polymer concretes are mixtures of aggregate and any of various polymers and may be reinforced. The cement is costlier than lime-based cements, but polymer concretes nevertheless have advantages; they have significant tensile strength even without reinforcement, and they are largely impervious to water. Polymer concretes are frequently used for the repair and construction of other applications, such as drains.

Plant fibers

[edit]

Plant fibers and particles can be used in a concrete mix or as a reinforcement.[92][93][94] These materials can increase ductility but the lignocellulosic particles hydrolyze during concrete curing as a result of alkaline environment and elevated temperatures[95][96][97] Such process, that is difficult to measure,[98] can affect the properties of the resulting concrete.

Sulfur concrete

[edit]
Main article: Sulfur concrete

Sulfur concrete is a special concrete that uses sulfur as a binder and does not require cement or water.

Volcanic

[edit]

Volcanic concrete substitutes volcanic rock for the limestone that is burned to form clinker. It consumes a similar amount of energy, but does not directly emit carbon as a byproduct.[99] Volcanic rock/ash are used as supplementary cementitious materials in concrete to improve the resistance to sulfate, chloride and alkali silica reaction due to pore refinement.[100] Also, they are generally cost effective in comparison to other aggregates,[101] good for semi and light weight concretes,[101] and good for thermal and acoustic insulation.[101]

Pyroclastic materials, such as pumice, scoria, and ashes are formed from cooling magma during explosive volcanic eruptions. They are used as supplementary cementitious materials (SCM) or as aggregates for cements and concretes.[102] They have been extensively used since ancient times to produce materials for building applications. For example, pumice and other volcanic glasses were added as a natural pozzolanic material for mortars and plasters during the construction of the Villa San Marco in the Roman period (89 BC – 79 AD), which

remain one of the best-preserved otium villae of the Bay of Naples in Italy.[103]

Waste light

[edit]
Main article: Waste light concrete

Waste light is a form of polymer modified concrete. The specific polymer admixture allows the replacement of all the traditional aggregates (gravel, sand, stone) by any mixture of solid waste materials in the grain size of 3–10 mm to form a low-compressive-strength (3–20 N/mm^2) product[104] for road and building construction. One cubic meter of waste light concrete contains 1.1–1.3 m^3 of shredded waste and no other aggregates.

Recycled Aggregate Concrete (RAC)

[edit]

This section **does not cite any sources**. Please help improve this section by adding citations to reliable sources. Unsourced material may be challenged and removed. *(October 2024) (Learn how and when to remove this message)*

Recycled aggregate concretes are standard concrete mixes with the addition or substitution of natural aggregates with recycled aggregates sourced from construction and demolition wastes, disused pre-cast concretes or masonry. In most cases, recycled aggregate concrete results in higher water absorption levels by capillary action and permeation, which are the prominent determiners of the strength and durability of the resulting concrete. The increase in water absorption levels is mainly caused by the porous adhered mortar that exists in the recycled aggregates. Accordingly, recycled concrete aggregates that have been washed to reduce the quantity of mortar adhered to aggregates show lower water absorption levels compared to untreated recycled aggregates.

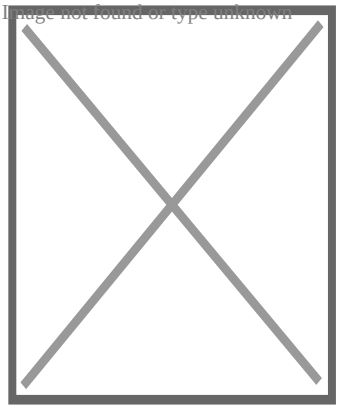
The quality of the recycled aggregate concrete is determined by several factors, including the size, the number of replacement cycles, and the moisture levels of the recycled aggregates. When the recycled concrete aggregates are crushed into coarser fractures, the mixed concrete shows better permeability levels, resulting in an overall increase in strength. In contrast, recycled masonry aggregates provide better qualities when crushed in finer fractures. With each generation of recycled concrete, the resulting compressive strength decreases.

Properties

[edit]
Main article: Properties of concrete

Concrete has relatively high compressive strength, but much lower tensile strength.[105] Therefore, it is usually reinforced with materials that are strong in tension (often steel). The elasticity of concrete is relatively constant at low stress levels but starts decreasing at higher stress levels as matrix cracking develops. Concrete has a very low coefficient of thermal expansion and shrinks as it matures. All concrete structures crack to some extent, due to shrinkage and tension. Concrete that is subjected to long-duration forces is prone to creep.

Tests can be performed to ensure that the properties of concrete correspond to specifications for the application.



Compression testing of a concrete cylinder

The ingredients affect the strengths of the material. Concrete strength values are usually specified as the lower-bound compressive strength of either a cylindrical or cubic specimen as determined by standard test procedures.

The strengths of concrete is dictated by its function. Very low-strength—14 MPa (2,000 psi) or less—concrete may be used when the concrete must be lightweight.[106] Lightweight concrete is often achieved by adding air, foams, or lightweight aggregates, with the side effect that the strength is reduced. For most routine uses, 20 to 32 MPa (2,900 to 4,600 psi) concrete is often used. 40 MPa (5,800 psi) concrete is readily commercially available as a more durable, although more expensive, option. Higher-strength concrete is often used for larger civil projects.[107] Strengths above 40 MPa (5,800 psi) are often used for specific building elements. For example, the lower floor columns of high-rise concrete buildings may use concrete of 80 MPa (11,600 psi) or more, to keep the size of the columns small. Bridges may use long beams of high-strength concrete to lower the number of spans required.[108][109] Occasionally, other structural needs may require high-strength concrete. If a structure must be very rigid, concrete of very high strength may be specified, even much stronger than is required to bear the service loads. Strengths as high as 130 MPa (18,900 psi) have been used commercially for these reasons.[108]

Energy efficiency

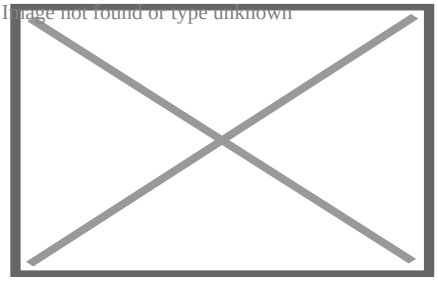
[edit]

The cement produced for making concrete accounts for about 8% of worldwide CO_2 emissions per year (compared to, *e.g.*, global aviation at 1.9%).[110][111] The two largest sources of CO_2 are produced by the cement manufacturing process, arising from (1) the decarbonation reaction of limestone in the cement kiln (T ? 950 °C), and (2) from the combustion of fossil fuel to reach the sintering temperature (T ? 1450 °C) of cement clinker in the kiln. The energy required for extracting, crushing, and mixing the raw materials (construction aggregates used in the concrete production, and also limestone and clay feeding the cement kiln) is lower. Energy requirement for transportation of ready-mix concrete is also lower because it is produced nearby the construction site from local resources, typically manufactured within 100 kilometers of the job site.[112] The overall embodied energy of concrete at roughly 1 to 1.5 megajoules per kilogram is therefore lower than for many structural and construction materials.[113]

Once in place, concrete offers a great energy efficiency over the lifetime of a building.[114] Concrete walls leak air far less than those made of wood frames.[115] Air leakage accounts for a large percentage of energy loss from a home. The thermal mass properties of concrete increase the efficiency of both residential and commercial buildings. By storing and releasing the energy needed for heating or cooling, concrete's thermal mass delivers year-round benefits by reducing temperature swings inside and minimizing heating and cooling costs.[116] While insulation reduces energy loss through the building envelope, thermal mass uses walls to store and release energy. Modern concrete wall systems use both external insulation and thermal mass to create an energy-efficient building. Insulating concrete forms (ICFs) are hollow blocks or panels made of either insulating foam or rastra that are stacked to form the shape of the walls of a building and then filled with reinforced concrete to create the structure.

Fire safety

[edit]



Boston City Hall (1968) is a Brutalist design constructed largely of precast and poured in place concrete.

Concrete buildings are more resistant to fire than those constructed using steel frames, since concrete has lower heat conductivity than steel and can thus last longer under the same fire conditions. Concrete is sometimes used as a fire protection for steel frames, for the same effect as above. Concrete as a fire shield, for example Fondu fyre, can also be used in extreme environments like a missile launch pad.

Options for non-combustible construction include floors, ceilings and roofs made of cast-in-place and hollow-core precast concrete. For walls, concrete masonry technology and Insulating Concrete Forms (ICFs) are additional options. ICFs are hollow blocks or panels made of fireproof insulating foam that are stacked to form the shape of the walls of a building and then filled with reinforced concrete to create the structure.

Concrete also provides good resistance against externally applied forces such as high winds, hurricanes, and tornadoes owing to its lateral stiffness, which results in minimal horizontal movement. However, this stiffness can work against certain types of concrete structures, particularly where a relatively higher flexing structure is required to resist more extreme forces.

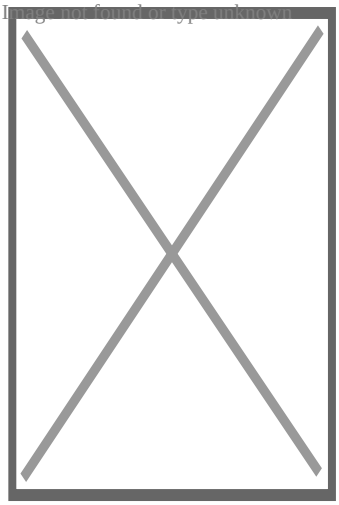
Earthquake safety

[edit]

As discussed above, concrete is very strong in compression, but weak in tension. Larger earthquakes can generate very large shear loads on structures. These shear loads subject the structure to both tensile and compressional loads. Concrete structures without reinforcement, like other unreinforced masonry structures, can fail during severe earthquake shaking. Unreinforced masonry structures constitute one of the largest earthquake risks globally.[117] These risks can be reduced through seismic retrofitting of at-risk buildings, (e.g. school buildings in Istanbul, Turkey).[118]

Construction

[edit]



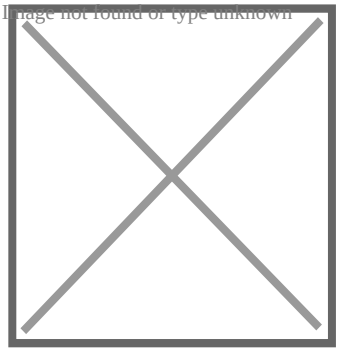
The City Court Building in Buffalo, New York

Concrete is one of the most durable building materials. It provides superior fire resistance compared with wooden construction and gains strength over time. Structures made of concrete can have a long service life.[119] Concrete is used more than any other artificial material in the

world.[120] As of 2006, about 7.5 billion cubic meters of concrete are made each year, more than one cubic meter for every person on Earth.[121]

Reinforced

[edit]
Main article: Reinforced concrete



Christ the Redeemer statue in Rio de Janeiro, Brazil. It is made of reinforced concrete clad in a mosaic of thousands of triangular soapstone tiles.[122]

The use of reinforcement, in the form of iron was introduced in the 1850s by French industrialist François Coignet, and it was not until the 1880s that German civil engineer G. A. Wayss used steel as reinforcement. Concrete is a relatively brittle material that is strong under compression but less in tension. Plain, unreinforced concrete is unsuitable for many structures as it is relatively poor at withstanding stresses induced by vibrations, wind loading, and so on. Hence, to increase its overall strength, steel rods, wires, mesh or cables can be embedded in concrete before it is set. This reinforcement, often known as rebar, resists tensile forces.[123]

Reinforced concrete (RC) is a versatile composite and one of the most widely used materials in modern construction. It is made up of different constituent materials with very different properties that complement each other. In the case of reinforced concrete, the component materials are almost always concrete and steel. These two materials form a strong bond together and are able to resist a variety of applied forces, effectively acting as a single structural element.[124]

Reinforced concrete can be precast or cast-in-place (in situ) concrete, and is used in a wide range of applications such as; slab, wall, beam, column, foundation, and frame construction. Reinforcement is generally placed in areas of the concrete that are likely to be subject to tension, such as the lower portion of beams. Usually, there is a minimum of 50 mm cover, both above and below the steel reinforcement, to resist spalling and corrosion which can lead to structural instability.[123] Other types of non-steel reinforcement, such as Fibre-reinforced concretes are used for specialized applications, predominately as a means of controlling cracking.[124]

Precast

[edit]
Main article: Precast concrete

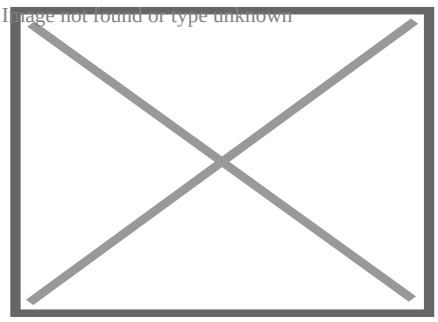
Precast concrete is concrete which is cast in one place for use elsewhere and is a mobile material. The largest part of precast production is carried out in the works of specialist suppliers, although in some instances, due to economic and geographical factors, scale of product or difficulty of access, the elements are cast on or adjacent to the construction site.[125] Precasting offers considerable advantages because it is carried out in a controlled environment, protected from the elements, but the downside of this is the contribution to greenhouse gas emission from transportation to the construction site.[124]

Advantages to be achieved by employing precast concrete:[125]

- Preferred dimension schemes exist, with elements of tried and tested designs available from a catalogue.
- Major savings in time result from manufacture of structural elements apart from the series of events which determine overall duration of the construction, known by planning engineers as the 'critical path'.
- Availability of Laboratory facilities capable of the required control tests, many being certified for specific testing in accordance with National Standards.
- Equipment with capability suited to specific types of production such as stressing beds with appropriate capacity, moulds and machinery dedicated to particular products.
- High-quality finishes achieved direct from the mould eliminate the need for interior decoration and ensure low maintenance costs.

Mass structures

[edit]
Main article: Mass concrete



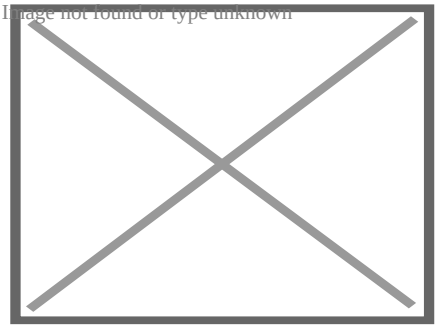
Aerial photo of reconstruction at Taum Sauk (Missouri) pumped storage facility in late November 2009. After the original reservoir failed, the new reservoir was made of roller-compacted concrete.

Due to cement's exothermic chemical reaction while setting up, large concrete structures such as dams, navigation locks, large mat foundations, and large breakwaters generate excessive heat during hydration and associated expansion. To mitigate these effects, *post-cooling*[126] is commonly applied during construction. An early example at Hoover Dam used a network of pipes between vertical concrete placements to circulate cooling water during the curing process to avoid damaging overheating. Similar systems are still used; depending on volume of the pour, the concrete mix used, and ambient air temperature, the cooling process may last for many months after the concrete is placed. Various methods also are used to pre-cool the concrete mix in mass concrete structures.[126]

Another approach to mass concrete structures that minimizes cement's thermal by-product is the use of roller-compacted concrete, which uses a dry mix which has a much lower cooling requirement than conventional wet placement. It is deposited in thick layers as a semi-dry material then roller compacted into a dense, strong mass.

Surface finishes

[edit]
Main article: Decorative concrete



Black basalt polished concrete floor

Raw concrete surfaces tend to be porous and have a relatively uninteresting appearance. Many finishes can be applied to improve the appearance and preserve the surface against staining, water penetration, and freezing.

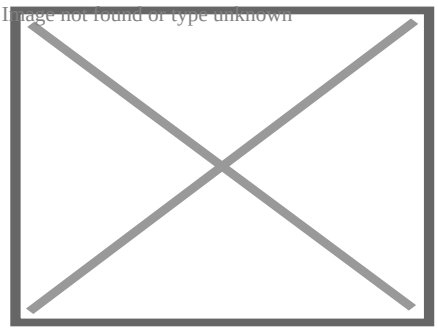
Examples of improved appearance include stamped concrete where the wet concrete has a pattern impressed on the surface, to give a paved, cobbled or brick-like effect, and may be accompanied with coloration. Another popular effect for flooring and table tops is polished concrete where the concrete is polished optically flat with diamond abrasives and sealed with polymers or other sealants.

Other finishes can be achieved with chiseling, or more conventional techniques such as painting or covering it with other materials.

The proper treatment of the surface of concrete, and therefore its characteristics, is an important stage in the construction and renovation of architectural structures.[127]

Prestressed

[edit]
Main article: Prestressed concrete



Stylized cacti decorate a sound/retaining wall in Scottsdale, Arizona

Prestressed concrete is a form of reinforced concrete that builds in compressive stresses during construction to oppose tensile stresses experienced in use. This can greatly reduce the weight of beams or slabs, by better distributing the stresses in the structure to make optimal use of the reinforcement. For example, a horizontal beam tends to sag. Prestressed reinforcement along the bottom of the beam counteracts this. In pre-tensioned concrete, the prestressing is achieved by using steel or polymer tendons or bars that are subjected to a tensile force prior to casting, or for post-tensioned concrete, after casting.

There are two different systems being used:[124]

- Pretensioned concrete is almost always precast, and contains steel wires (tendons) that are held in tension while the concrete is placed and sets around them.
- Post-tensioned concrete has ducts through it. After the concrete has gained strength, tendons are pulled through the ducts and stressed. The ducts are then filled with grout. Bridges built in this way have experienced considerable corrosion of the tendons, so external post-tensioning may now be used in which the tendons run along the outer surface of the concrete.

More than 55,000 miles (89,000 km) of highways in the United States are paved with this material. Reinforced concrete, prestressed concrete and precast concrete are the most widely used types of concrete functional extensions in modern days. For more information see Brutalist architecture.

Placement

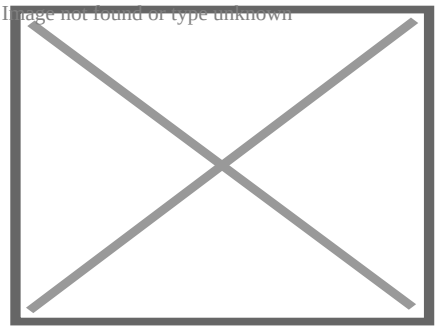
[edit]

Once mixed, concrete is typically transported to the place where it is intended to become a structural item. Various methods of transportation and placement are used depending on the

distances involve, quantity needed, and other details of application. Large amounts are often transported by truck, poured free under gravity or through a tremie, or pumped through a pipe. Smaller amounts may be carried in a skip (a metal container which can be tilted or opened to release the contents, usually transported by crane or hoist), or wheelbarrow, or carried in toggle bags for manual placement underwater.

Cold weather placement

[edit]



Pohjolatalo, an office building made of concrete in the city center of Kouvola in Kymenlaakso, Finland

Extreme weather conditions (extreme heat or cold; windy conditions, and humidity variations) can significantly alter the quality of concrete. Many precautions are observed in cold weather placement.[128] Low temperatures significantly slow the chemical reactions involved in hydration of cement, thus affecting the strength development. Preventing freezing is the most important precaution, as formation of ice crystals can cause damage to the crystalline structure of the hydrated cement paste. If the surface of the concrete pour is insulated from the outside temperatures, the heat of hydration will prevent freezing.

The American Concrete Institute (ACI) definition of cold weather placement, ACI 306,[129] is:

- A period when for more than three successive days the average daily air temperature drops below 40 °F (~ 4.5 °C), and
- Temperature stays below 50 °F (10 °C) for more than one-half of any 24-hour period.

In Canada, where temperatures tend to be much lower during the cold season, the following criteria are used by CSA A23.1:

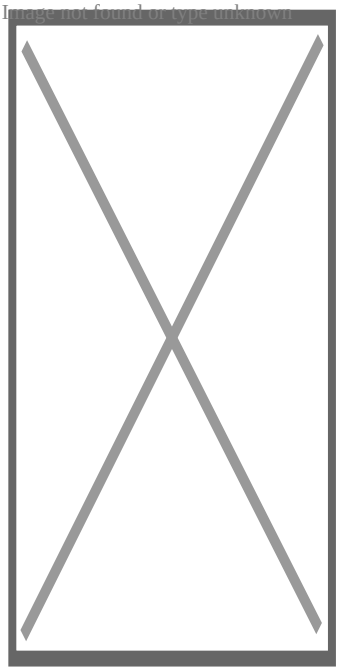
- When the air temperature is ? 5 °C, and
- When there is a probability that the temperature may fall below 5 °C within 24 hours of placing the concrete.

The minimum strength before exposing concrete to extreme cold is 500 psi (3.4 MPa). CSA A 23.1 specified a compressive strength of 7.0 MPa to be considered safe for exposure to

freezing.

Underwater placement

[edit]
See also: Underwater construction



Assembled tremie placing concrete underwater

Concrete may be placed and cured underwater. Care must be taken in the placement method to prevent washing out the cement. Underwater placement methods include the tremie, pumping, skip placement, manual placement using toggle bags, and bagwork.[130]

A tremie is a vertical, or near-vertical, pipe with a hopper at the top used to pour concrete underwater in a way that avoids washout of cement from the mix due to turbulent water contact with the concrete while it is flowing. This produces a more reliable strength of the product. The toggle bag method is generally used for placing small quantities and for repairs. Wet concrete is loaded into a reusable canvas bag and squeezed out at the required place by the diver. Care must be taken to avoid washout of the cement and fines.

Underwater bagwork is the manual placement by divers of woven cloth bags containing dry mix, followed by piercing the bags with steel rebar pins to tie the bags together after every two or three layers, and create a path for hydration to induce curing, which can typically take about 6 to 12 hours for initial hardening and full hardening by the next day. Bagwork concrete will generally reach full strength within 28 days. Each bag must be pierced by at least one, and

preferably up to four pins. Bagwork is a simple and convenient method of underwater concrete placement which does not require pumps, plant, or formwork, and which can minimise environmental effects from dispersing cement in the water. Prefilled bags are available, which are sealed to prevent premature hydration if stored in suitable dry conditions. The bags may be biodegradable.[131]

Grouted aggregate is an alternative method of forming a concrete mass underwater, where the forms are filled with coarse aggregate and the voids then completely filled from the bottom by displacing the water with pumped grout.[130]

Roads

[edit]

Concrete roads are more fuel efficient to drive on,[132] more reflective and last significantly longer than other paving surfaces, yet have a much smaller market share than other paving solutions. Modern-paving methods and design practices have changed the economics of concrete paving, so that a well-designed and placed concrete pavement will be less expensive on initial costs and significantly less expensive over the life cycle. Another major benefit is that pervious concrete can be used, which eliminates the need to place storm drains near the road, and reducing the need for slightly sloped roadway to help rainwater to run off. No longer requiring discarding rainwater through use of drains also means that less electricity is needed (more pumping is otherwise needed in the water-distribution system), and no rainwater gets polluted as it no longer mixes with polluted water. Rather, it is immediately absorbed by the ground.[*citation needed*]

Tube forest

[edit]

Cement molded into a forest of tubular structures can be 5.6 times more resistant to cracking/failure than standard concrete. The approach mimics mammalian cortical bone that features elliptical, hollow osteons suspended in an organic matrix, connected by relatively weak "cement lines". Cement lines provide a preferable in-plane crack path. This design fails via a "stepwise toughening mechanism". Cracks are contained within the tube, reducing spreading, by dissipating energy at each tube/step.[133]

Environment, health and safety

[edit]
Main article: Environmental impact of concrete

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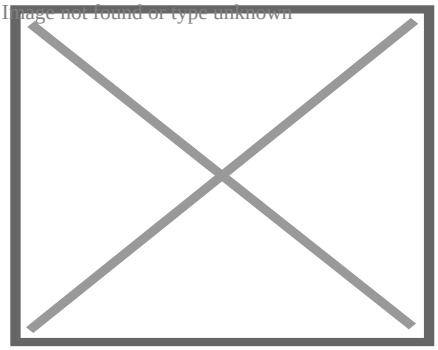
The manufacture and use of concrete produce a wide range of environmental, economic and social impacts.

Health and safety

[edit]
See also: Occupational dust exposure § Construction

Concrete dust emission from the use of power tool



Recycled crushed concrete, to be reused as granular fill, is loaded into a semi-dump truck

Grinding of concrete can produce hazardous dust. Exposure to cement dust can lead to issues such as silicosis, kidney disease, skin irritation and similar effects. The U.S. National Institute for Occupational Safety and Health in the United States recommends attaching local exhaust ventilation shrouds to electric concrete grinders to control the spread of this dust. In addition, the Occupational Safety and Health Administration (OSHA) has placed more stringent regulations on companies whose workers regularly come into contact with silica dust. An updated silica rule, which OSHA put into effect 23 September 2017 for construction companies, restricted the amount of breathable crystalline silica workers could legally come into contact with to 50 micro grams per cubic meter of air per 8-hour workday. That same rule went into effect 23 June 2018 for general industry, hydraulic fracturing and maritime. That deadline was extended to 23 June 2021 for engineering controls in the hydraulic fracturing industry. Companies which fail to meet the tightened safety regulations can face financial charges and extensive penalties. The presence of some substances in concrete, including useful and unwanted additives, can cause health concerns due to toxicity and radioactivity. Fresh concrete (before curing is complete) is highly alkaline and must be handled with proper protective equipment.

Cement

[edit]

A major component of concrete is cement, a fine powder used mainly to bind sand and coarser aggregates together in concrete. Although a variety of cement types exist, the most common is "Portland cement", which is produced by mixing clinker with smaller quantities of other additives such as gypsum and ground limestone. The production of clinker, the main constituent of cement, is responsible for the bulk of the sector's greenhouse gas emissions, including both energy intensity and process emissions.[134]

The cement industry is one of the three primary producers of carbon dioxide, a major greenhouse gas – the other two being energy production and transportation industries. On average, every tonne of cement produced releases one tonne of CO_2 into the atmosphere. Pioneer cement manufacturers have claimed to reach lower carbon intensities, with 590 kg of CO_2eq per tonne of cement produced.[135] The emissions are due to combustion and calcination processes,[136] which roughly account for 40% and 60% of the greenhouse gases, respectively. Considering that cement is only a fraction of the constituents of concrete, it is estimated that a tonne of concrete is responsible for emitting about 100–200 kg of CO_2.[137][138] Every year more than 10 billion tonnes of concrete are used worldwide.[138] In the coming years, large quantities of concrete will continue to be used, and the mitigation of CO_2 emissions from the sector will be even more critical.

Concrete is used to create hard surfaces that contribute to surface runoff, which can cause heavy soil erosion, water pollution, and flooding, but conversely can be used to divert, dam, and control flooding. Concrete dust released by building demolition and natural disasters can be a major source of dangerous air pollution. Concrete is a contributor to the urban heat island effect, though less so than asphalt.

Climate change mitigation

[edit]

Reducing the cement clinker content might have positive effects on the environmental life-cycle assessment of concrete. Some research work on reducing the cement clinker content in concrete has already been carried out. However, there exist different research strategies. Often replacement of some clinker for large amounts of slag or fly ash was investigated based on conventional concrete technology. This could lead to a waste of scarce raw materials such as slag and fly ash. The aim of other research activities is the efficient use of cement and reactive materials like slag and fly ash in concrete based on a modified mix design approach.[139]

The embodied carbon of a precast concrete facade can be reduced by 50% when using the presented fiber reinforced high performance concrete in place of typical reinforced concrete cladding.[140] Studies have been conducted about commercialization of low-carbon concretes. Life cycle assessment (LCA) of low-carbon concrete was investigated according to the ground granulated blast-furnace slag (GGBS) and fly ash (FA) replacement ratios. Global warming

potential (GWP) of GGBS decreased by 1.1 kg CO_2 eq/m^3, while FA decreased by 17.3 kg CO_2 eq/m^3 when the mineral admixture replacement ratio was increased by 10%. This study also compared the compressive strength properties of binary blended low-carbon concrete according to the replacement ratios, and the applicable range of mixing proportions was derived.[141]

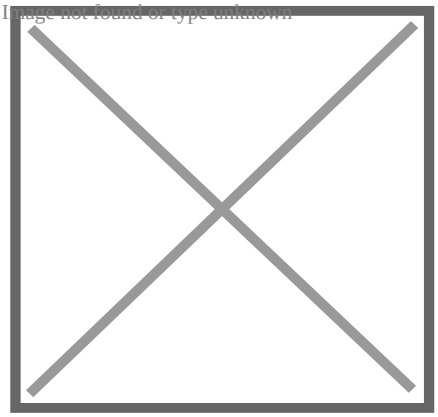
Climate change adaptation

[edit]

High-performance building materials will be particularly important for enhancing resilience, including for flood defenses and critical-infrastructure protection.[142] Risks to infrastructure and cities posed by extreme weather events are especially serious for those places exposed to flood and hurricane damage, but also where residents need protection from extreme summer temperatures. Traditional concrete can come under strain when exposed to humidity and higher concentrations of atmospheric CO_2. While concrete is likely to remain important in applications where the environment is challenging, novel, smarter and more adaptable materials are also needed.[138][143]

End-of-life: degradation and waste

[edit]



The Tunkhannock Viaduct in northeastern Pennsylvania opened in 1915 and is still in regular use today

This paragraph is an excerpt from Concrete degradation.[edit]
Concrete degradation may have many different causes. Concrete is mostly damaged by the corrosion of reinforcement bars due to the carbonatation of hardened cement paste or chloride attack under wet conditions. Chemical damage is caused by the formation of expansive products produced by chemical reactions (from carbonatation, chlorides, sulfates and distillate water), by aggressive chemical species present in groundwater and seawater (chlorides, sulfates, magnesium ions), or by microorganisms (bacteria, fungi...) Other damaging processes can also involve calcium leaching by water infiltration, physical phenomena initiating cracks

formation and propagation, fire or radiant heat, aggregate expansion, sea water effects, leaching, and erosion by fast-flowing water.[144]

Recycling

[edit]

This paragraph is an excerpt from Concrete recycling.[edit]
Concrete recycling is the use of rubble from demolished concrete structures. Recycling is cheaper and more ecological than trucking rubble to a landfill.[145] Crushed rubble can be used for road gravel, revetments, retaining walls, landscaping gravel, or raw material for new concrete. Large pieces can be used as bricks or slabs, or incorporated with new concrete into structures, a material called urbanite.[146][147]

There have been concerns about the recycling of painted concrete due to possible lead content. Studies have indicated that recycled concrete exhibits lower strength and durability compared to concrete produced using natural aggregates.[148][149][150][151] This deficiency can be addressed by incorporating supplementary materials such as fly ash into the mixture.[152]

World records

[edit]

The world record for the largest concrete pour in a single project is the Three Gorges Dam in Hubei Province, China by the Three Gorges Corporation. The amount of concrete used in the construction of the dam is estimated at 16 million cubic meters over 17 years. The previous record was 12.3 million cubic meters held by Itaipu hydropower station in Brazil.[153][154][155]

The world record for concrete pumping was set on 7 August 2009 during the construction of the Parbati Hydroelectric Project, near the village of Suind, Himachal Pradesh, India, when the concrete mix was pumped through a vertical height of 715 m (2,346 ft).[156][157]

The Polavaram dam works in Andhra Pradesh on 6 January 2019 entered the Guinness World Records by pouring 32,100 cubic metres of concrete in 24 hours.[158] The world record for the largest continuously poured concrete raft was achieved in August 2007 in Abu Dhabi by contracting firm Al Habtoor-CCC Joint Venture and the concrete supplier is Unibeton Ready Mix.[159][160] The pour (a part of the foundation for the Abu Dhabi's Landmark Tower) was 16,000 cubic meters of concrete poured within a two-day period.[161] The previous record, 13,200 cubic meters poured in 54 hours despite a severe tropical storm requiring the site to be covered with tarpaulins to allow work to continue, was achieved in 1992 by joint Japanese and South Korean consortiums Hazama Corporation and the Samsung C&T Corporation for the construction of the Petronas Towers in Kuala Lumpur, Malaysia.[162]

The world record for largest continuously poured concrete floor was completed 8 November 1997, in Louisville, Kentucky by design-build firm EXXCEL Project Management. The monolithic placement consisted of 225,000 square feet (20,900 m^2) of concrete placed in 30 hours, finished to a flatness tolerance of F_F 54.60 and a levelness tolerance of F_L 43.83. This surpassed the previous record by 50% in total volume and 7.5% in total area.[163][164]

The record for the largest continuously placed underwater concrete pour was completed 18 October 2010, in New Orleans, Louisiana by contractor C. J. Mahan Construction Company, LLC of Grove City, Ohio. The placement consisted of 10,251 cubic yards of concrete placed in 58.5 hours using two concrete pumps and two dedicated concrete batch plants. Upon curing, this placement allows the 50,180-square-foot (4,662 m^2) cofferdam to be dewatered approximately 26 feet (7.9 m) below sea level to allow the construction of the Inner Harbor Navigation Canal Sill & Monolith Project to be completed in the dry.[165]

Art

[edit]

Concrete is used as an artistic medium.[*citation needed*] Its appearance is also imitated in other media: for example Congolese artist Sardoine Mia creates canvases that look like concrete surfaces.[166]

See also

[edit]

- Concrete leveling – Process to level concrete by levelling its underlying foundation
- Concrete mixer – Device that combines cement, aggregate, and water to form concrete
- Concrete masonry unit – Standard-sized block used in construction
- Concrete plant – Equipment that combines various ingredients to form concrete
- Eurocode 2: Design of concrete structures
- Heavy metals – Loosely defined subset of elements that exhibit metallic properties
- Hempcrete – Biocomposite material used for construction and insulation
- Particulates – Microscopic solid or liquid matter suspended in the Earth's atmosphere
- Schmidt hammer – Type of measuring instrument
- Syncrete – Synthetic form of concrete
- Thermal integrity profiling – Method used to test concrete

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Further reading

[edit]

- *"The world's growing problem with concrete, the world's most destructive material" (Video) . BBC Reel. 6 March 2023.*

External links

[edit]

Image not found or type unknown

Wikimedia Commons has media related to ***Concrete***.

- Advantage and Disadvantage of Concrete
- *Dunning, Brian (4 January 2022). "Skeptoid #813: Why You Need to Care About Concrete". Skeptoid. Retrieved 14 May 2022.*
- Getting Buried in Concrete to Explain How It Works on YouTube
- Release of ultrafine particles from three simulated building processes
- Concrete: The Quest for Greener Alternatives

- **v**
- **t**
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Road hierarchy

Types of road

Limited-access

- Bicycle highway
- Freeway / Motorway
- Dual carriageway / Divided highway / Expressway
- Elevated highway

By country

- Australia
- Belgium
- Brazil
- Canada
- China
- Croatia
- Czech Republic
- Germany
- Greece
- Hong Kong
- India
- Ireland
- Italy
- Nepal
- Pakistan
- Poland
- Portugal
- Spain
- Taiwan
- United Kingdom
- United States

Main roads

- Arterial road
- Collector road
- County highway
- Express–collector setup
- Farm-to-market road
- Highway
- Link road
- Two-lane expressway
- 2+1 road
- 2+2 road
- Parkway
- Ring road
- Trunk road
- Highway systems by country

- Alley
- Avenue

Road junctions

Interchanges (grade-separated)

- Cloverleaf
- Diamond
- Free-flow
- Directional T
- Diverging diamond
- Parclo
- Raindrop
- Roundabout
- Single-point urban (SPUI)
- Stack
- Three-level diamond
- Trumpet

Intersections (at-grade)

- 3-way junction
- Bowtie
- Box junction
- Channelization
- Continuous flow
- Hook turn
- Jughandle
- Michigan left
- Offset T-intersection
- Protected intersection
- Quadrant roadway
- Right-in/right-out (RIRO)
- Roundabout
- Seagull intersection
- Split intersection
- Superstreet
- Texas U-turn
- Turnaround

Surfaces

- Asphalt concrete
- Bioasphalt
- Brick
- Chipseal
- Cobblestone
- Concrete
  - Reinforced concrete
- Corduroy
- Crocodile cracking
- Crushed stone
- Diamond grinding of pavement
- Dirt
- Full depth recycling
- Glassphalt
- Gravel
- Ice
- Macadam
- Pavement milling
- Permeable
- Plank
- Plastic
- Rubberized asphalt
- Sealcoat
- Sett
- Stamped asphalt
- Tarmac
- Texture

Road safety factors

Road and environment

- Aquaplaning
- Avalanche
- Black ice
- Bleeding
- Crosswind
- Dead Man's Curve
- Expansion joint
- Fog
- Ford
- Hairpin turn
- Level crossing
- Manhole cover
- Oil spill
- Oversize load
- Pothole
- Road debris
- Road slipperiness
- Road train
- Roadkill
- Rockfall
- Rut
- Snow squall
- Speed bump
- Storm drain
- Traffic light
- Traffic sign
- Washboarding
- Washout
- Whiteout

Human factors

- Driver's education
- Driving under the influence
- Drowsy driving
- Road rage
- Single-vehicle crash

Vehicles

- Airbag
- Automotive safety
- Crumple zone
- Seat belt
- Risk compensation (road transport)
- Underride guard

Space and time allocation

- Barrier transfer machine
- Bike lane
- Climbing lane
- Complete streets
- Contraflow lane
- Contraflow lane reversal
- High-occupancy toll lane
- High-occupancy vehicle lane
- Lane
- Living street
- Managed lane
- Median / Central reservation
- Motorcycle lane
- Passing lane
- Pedestrian crossing
- Pedestrian zone
- Refuge island
- Reversible lane
- Road diet
- Road verge
- Runaway truck ramp
- Shared space
- Sidewalk / Pavement
- Shoulder
- Street-running railway
- Traffic calming
- Traffic directionality
- Traffic island
- Traffic lanes
- Traffic signal preemption
- Truck bypass
- Unused highway
- Wide outside lane
- Woonerf

Demarcation	○ Bollard ○ Botts' dots ○ Cable barrier ○ Cat's eye (road) ○ Concrete step barrier ○ Constant-slope barrier ○ Curb ○ F-shape barrier ○ Guard rail ○ Jersey barrier ○ Kassel kerb ○ Noise barrier ○ Raised pavement marker ○ Road surface marking ○ Rumble strip ○ Traffic barrier ○ Traffic cone
Structures	○ Bridge ○ Causeway ○ Overpass / Flyover ○ Underpass / Tunnel
Performance indicators	○ Pavement condition index ○ International roughness index ○ Present serviceability index ○ Pavement performance modeling ○ Granular base equivalency

- Glossary of road transport terms
- Road types by features
- Template:Traffic signs

- **v**
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Stonemasonry

Types

- Ashlar
- Rustication
- Carving
- Dry stone
- Letter cutting
- Masonry
- Post-tensioned stone
- Massive precut stone
- Monumental
- Rubble
- Sculpture
- Slipform
- Snecked

Materials

- Artificial stone
- Brick
- Cast stone
- Decorative stones
- Dimension stone
- Fieldstone
- Flagstone
- Gabion
- Granite
- Grout
- Lime mortar
- Limestone
- Marble
  - Types
- Mortar
- Sandstone
  - List
- Slate
- Stone veneer

Tools

- Angle grinder
- Bush hammer
- Ceramic tile cutter
- Chisel
- Diamond blade
- Lewis (lifting appliance)
- Trowel
- Non-explosive demolition agents
- Plug and feather
- Stonemason's hammer
- Straightedge

Techniques

- Flaming
- Flushwork
- Knapping
- Polygonal masonry
- Repointing
- Scabbling
- Tuckpointing
- Veneer
- Brickwork
  - Wythe

Products

- Castle
- Hardstone carving
- Headstone (Footstone)
- Mosaic
- Sculpture
- Stone wall
- Machicolation

Organizations

- International Union of Bricklayers and Allied Craftworkers
- Master of Work to the Crown of Scotland
- Mason Contractors Association of America
- Operative Plasterers' and Cement Masons' International Association
- Worshipful Company of Masons

- **v**
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Concrete

History

- Ancient Roman architecture
- Roman architectural revolution
- Roman concrete
- Roman engineering
- Roman technology

Composition

- Cement
  - Calcium aluminate
  - Energetically modified
  - Portland
  - Rosendale
- Water
- Water–cement ratio
- Aggregate
- Reinforcement
- Fly ash
- Ground granulated blast-furnace slag
- Silica fume
- Metakaolin

Production

- Plant
- Concrete mixer
- Volumetric mixer
- Reversing drum mixer
- Slump test
- Flow table test
- Curing
- Concrete cover
- Cover meter
- Rebar

Construction

- Precast
- Cast-in-place
- Formwork
- Climbing formwork
- Slip forming
- Screed
- Power screed
- Finisher
- Grinder
- Power trowel
- Pump
- Float
- Sealer
- Tremie

Science

- Properties
- Durability
- Degradation
- Environmental impact
- Recycling
- Segregation
- Alkali–silica reaction

Types

- AstroCrete
- Fiber-reinforced
- Filigree
- Foam
- Lunarcrete
- Mass
- Nanoconcrete
- Pervious
- Polished
- Polymer
- Prestressed
- Ready-mix
- Reinforced
- Roller-compacting
- Self-consolidating
- Self-leveling
- Sulfur
- Tabby
- Translucent
- Waste light
- Aerated
  - AAC
  - RAAC

Applications

- Slab
  - waffle
  - hollow-core
  - voided biaxial
  - slab on grade
- Concrete block
- Step barrier
- Roads
- Columns
- Structures

Organizations

- American Concrete Institute
- Concrete Society
- Institution of Structural Engineers
- Indian Concrete Institute
- Nanocem
- Portland Cement Association
- International Federation for Structural Concrete

Standards	○ Eurocode 2 ○ EN 197-1 ○ EN 206-1 ○ EN 10080
See also	○ Hempcrete

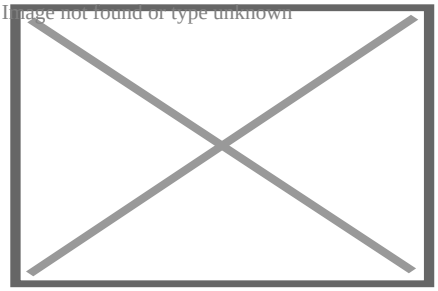
○ Image not found or type unknown Category:Concrete

Authority control databases Image not found or type unknown **Edit this at Wikidata**

National	○ Germany ○ United States ○ France ○ BnF data ○ Japan ○ Czech Republic ○ Israel
Other	○ NARA

About Patio

For other uses, see Patio (disambiguation).



A patio outside of a home in the Netherlands

A **patio** (/ÃƒÆ'Ã†â€™ÃƒÂ¢Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹ÃƒÂ¢Ã¢â€šÂ¬Ã‚Â pætioÃƒÆ'Ã†â€™Ã‚Â ÃƒÆ'Ã¢â‚¬Â¹Ã‚Â /,[1] from Spanish: *patio* [ÃƒÆ'Ã†â€™ÃƒÂ¢Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹ÃƒÂ¢Ã¢â€šÂ¬Ã‚Â patjo]; "courtyard",

"forecourt", "yard", "little garden") is an outdoor space generally used for dining or recreation that adjoins a structure and is typically paved.[2] In Australia, the term is expanded to include roofed structures such as a veranda, which provides protection from sun and rain.[3] Pronunciation can vary in Australia as well: *patty-oh* is perhaps more common generally although *payshee-oh* may be used by older Australians. [4]

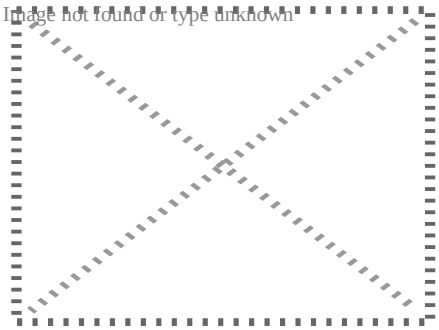
Construction

[edit]

Patios are most commonly paved with concrete or stone slabs (also known as paving flags). They can also be created using bricks, block paving, tiles, cobbles or gravel. Other kinds of patio materials these days include alumawood, aluminum, acrylic and glass. Other options include concrete, stamped concrete, and aggregate concrete.

Restaurant patio

[edit]



An outdoor seating area at a restaurant in State College, Pennsylvania

Patio is also a general term used for outdoor seating at restaurants, especially in Canadian English. While common in Europe even before 1900, eating outdoors at restaurants in North America was exotic until the 1940s. The Hotel St. Moritz in New York in the 1950s advertised itself as having the first true continental cafe with outdoor seating. The *Toronto Star* welcomed that city's first patio in the 1960s. In the United States, having a warmer and sunnier climate than Northern Europe, outdoor dining grew rapidly in the 1960s and today is a popular dining experience in the warmer parts of the mainland.[5]

See also

[edit]

- icon
Image not found or type unknown Architecture portal
- Andalusian patio

- Arizona room
- Catio
- Deck
- Porch
- Terrace garden
- Veranda

Notes

[edit]

1. ^ *"Patio in the Oxford Dictionary". Archived from the original on April 16, 2014.*
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4. ^ *"Australian Word Map". Macquarie Dictionary. Retrieved 18 June 2023.*
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External links

[edit]

- Image not found or type unknown Media related to Patios at Wikimedia Commons
- Image not found or type unknown The dictionary definition of *patio* at Wiktionary

- **v**
- **t**
- **e**

Garden features

- Artificial waterfall
- Avenue
- Aviary
- Borrowed scenery
- Bosquet
- Belvedere
- Cascade
- Deck
- Exedra
- Folly
- Fountain
- Garden buildings
- Garden pond
- Garden railway
- Garden room
- Gazebo
- Gloriette
- Greenhouse
- Green wall
- Grotto
  - Shell grotto
- Ha-ha
- Hedge
- Herbaceous border
- Jeux d'eau
- Labyrinth / Maze
  - Hedge
  - Turf
- Lawn
- Monopteros
- Moon bridge
- Moon gate
- Mound
- Nymphaeum
- Orangery
- Parterre
- Patio
- Pavilion
- Pergola
- Reflecting pool
- Shed
- Stepping stones
- Stumpery
- Sylvan theater
- Terrace
- Topiary
- Trellis

- **v**
- **t**
- **e**

Rooms and spaces of a house

Shared rooms

- Bonus room
- Common room
- Den
- Dining room
- Family room
- Garret
- Great room
- Home cinema
- Keeping room
- Kitchen
  - dirty kitchen
  - kitchenette
- Living room
- Gynaeceum
  - harem
- Andron
  - man cave
- Recreation room
  - billiard room
- Shrine
- Study
- Sunroom

Private rooms

- Bathroom
  - toilet
- Bedroom / Guest room
  - closet
- Bedsit / Miniflat
- Boudoir
- Cabinet
- Nursery

Spaces

- Atrium
- Balcony
- Breezeway
- Conversation pit
- Cubby-hole
- Deck
- Elevator
  - dumbwaiter
- Entryway/Genkan
- Fireplace
  - hearth
- Foyer
- Hall
- Hallway
- Inglenook
- Lanai
- Loft
- Loggia
- Overhang
- Patio
- Porch
  - screened
  - sleeping
- Ramp
- Secret passage
- Stairs/Staircase
- Terrace
- Veranda
- Vestibule

Technical, **utility and storage**	○ Attic ○ Basement ○ Carport ○ Cloakroom ○ Closet ○ Crawl space ○ Electrical room ○ Equipment room ○ Furnace room / Boiler room ○ Garage ○ Janitorial closet ○ Larder ○ Laundry room / Utility room / Storage room ○ Mechanical room / floor ○ Pantry ○ Root cellar ○ Semi-basement ○ Storm cellar / Safe room ○ Studio ○ Wardrobe ○ Wine cellar ○ Wiring closet ○ Workshop

Great house areas

- Antechamber
- Ballroom
- Kitchen-related
  - butler's pantry
  - buttery
  - saucery
  - scullery
  - spicery
  - still room
- Conservatory / Orangery
- Courtyard
- Drawing room
- Great chamber
- Great hall
- Library
- Long gallery
- Lumber room
- Parlour
- Sauna
- Servants' hall
- Servants' quarters
- Smoking room
- Solar
- State room
- Swimming pool
- Turret
- Undercroft

Other

- Furniture
- Hidden room
- House
  - house plan
  - styles
  - types
- Multi-family residential
- Secondary suite
- Duplex
- Terraced
- Detached
- Semi-detached
- Townhouse
- Studio apartment

Architectural elements

- Arch
- Balconet
- Baluster
- Belt course
- Bressummer
- Ceiling
- Chimney
- Colonnade / Portico
- Column
- Cornice / Eaves
- Dome
- Door
- Ell
- Floor
- Foundation
- Gable
- Gate
  - Portal
- Lighting
- Ornament
- Plumbing
- Quoins
- Roof
  - shingles
- Roof lantern
- Sill plate
- Style
  - list
- Skylight
- Threshold
- Transom
- Vault
- Wall
- Window

Related

- Backyard
- Driveway
- Front yard
- Garden
  - roof garden
- Home
- Home improvement
- Home repair
- Shed
- Tree house

- Image not found or type unknown Category: Rooms

Authority control databases: National Image not found or type unknown Edit this at Wikidata

About Nevada

This article is about the U.S. state. For other uses, see Nevada (disambiguation).
"Silver State" redirects here. For other uses, see Silver State (disambiguation).

Image not found or type unknown It has been suggested that *Southern Nevada* be merged into this article. (Discuss)
Proposed since February 2025.

Nevada

State
Flag of Nevada

Image not found or type unknown
Flag
Official seal of Nevada

Image not found or type unknown
Seal

Nickname(s):
The Silver State (official);
The Sagebrush State; The Battle Born State

Motto:
All for Our Country

Anthem: "Home Means Nevada"

Location of Nevada within the United States

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Location of Nevada within the United States

Country	United States
Before statehood	Nevada Territory, Utah Territory, Arizona Territory
Admitted to the Union	October 31, 1864 (36th)
Capital	Carson City
Largest city	Las Vegas
Largest county or equivalent	Clark
Largest metro and urban areas	Las Vegas Valley
	Government
• **Governor**	Joe Lombardo (R)
• **Lieutenant Governor**	Stavros Anthony (R)
Legislature	Nevada Legislature
• **Upper house**	Senate
• **Lower house**	Assembly
Judiciary	Supreme Court of Nevada
U.S. senators	Catherine Cortez Masto (D) Jacky Rosen (D)
U.S. House delegation	3 Democrats 1 Republican (list)
	Area

• **Total**	110,577 sq mi (286,382 km^2)
• **Land**	109,781.18 sq mi (284,332 km^2)
• **Water**	791 sq mi (2,048 km^2) 0.72%
• **Rank**	7th

Dimensions

• **Length**	492 mi (787 km)
• **Width**	322 mi (519 km)
Elevation	5,500 ft (1,680 m)
Highest elevation (Boundary Peak[1][2][a][b])	13,147 ft (4,007.1 m)
Lowest elevation (Colorado River at California border[2][a])	481 ft (147 m)

Population (2024)

• **Total**	3,267,467[2]
• **Rank**	32nd
• **Density**	26.8/sq mi (10.3/km^2)
• **Rank**	42nd
• **Median household income**	$76,400 (2023)[4]
• **Income rank**	24th
Demonym	Nevadan

Image 26: Unidentified type unknown

Neutral increase

Language

• **Official language**	None

Time zones

most of state	UTC?08:00 (Pacific)
• **Summer (DST)**	UTC?07:00 (PDT)
West Wendover	UTC?07:00 (Mountain)
• **Summer (DST)**	UTC?06:00 (MDT)

USPS abbreviation	NV
ISO 3166 code	US-NV
Traditional abbreviation	Nev.
Latitude	35° N to 42° N
Longitude	114°Ãƒ Æ’Ã†â€™Ãƒâ€šÃ‚Â¢Ãƒ Æ’Ã‚Â¢Ã¢â€šÂ¬Ã…Â¡Ãƒâ€šÃ‚Â¬Ã Æ’Ã¢â‚¬ W to 120° W
Website	nv.gov

State symbols of Nevada

List of state symbols

Song	Home Means Nevada

Living insignia

Bird	Mountain bluebird (*Sialia currucoides*)
Fish	Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)
Flower	Sagebrush (*Artemisia tridentata*)
Grass	Indian Rice Grass
Insect	Vivid Dancer Damselfly (*Argia vivida*)
Mammal	Desert bighorn sheep
Reptile	Desert tortoise (*Gopherus agassizii*)
Tree	Bristlecone pine, Single-leaf Piñon (*Pinus monophylla*)

Inanimate insignia

Color(s)	Silver, Blue
Fossil	Ichthyosaur (*Shonisaurus popularis*)
Gemstone	Virgin Valley Black Fire Opal
Mineral	Silver
Rock	Sandstone
Soil	Orovada series
Other	Element: Neon

State route marker

Route marker

Image not found or type unknown

State quarter

Nevada quarter dollar coin

Image not found or type unknown

Released in 2006

Lists of United States state symbols

Nevada (/nÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â°ÃƒÆ’Ã‚Â¢Ãƒâ€šÃ¢â€šÂ¬Ã…Â¾Ãƒâ€šÃ‚Â¢ ÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â¹ÃƒÆ’Ã¢â‚¬Â¹Ãƒâ€šÃ¢â€šÂ¬Ã‚Â væd ÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â°ÃƒÆ’Ã‚Â¢Ãƒâ€šÃ¢â€šÂ¬Ã…Â¾Ãƒâ€šÃ‚Â¢, -v ÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â°ÃƒÆ’Ã‚Â¢Ãƒâ€šÃ¢â€šÂ¬Ã¡Ã‚Â¬Ãƒâ€¹Ã…â€œÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ -/ ÃƒÆ’Ã†â€™Ãƒâ€šÃ‚Â¢ÃƒÆ’Ã‚Â¢Ãƒâ€šÃ¢â€šÂ¬Ã¡Ã‚Â¬Ãƒâ€¹Ã¢â‚¬Â¢Ã¢â€šÂ¬Ã…“ÃƒÆ’Ã¢â‚¬Â¹Ãƒâ€¹Ã¢â‚¬Â¢Ã¢â€šÂ¬Ã… *nÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â°ÃƒÆ’Ã‚Â¢Ãƒâ€šÃ¢â€šÂ¬Ã…Â¾Ãƒâ€šÃ‚Â¢-VAD-ÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â°ÃƒÆ’Ã‚Â¢Ãƒâ€šÃ¢â€šÂ¬Ã…Â¾Ãƒâ€šÃ‚Â¢, -ÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã¡Ã‚Â¬Ãƒâ€¹Ã¢â‚¬Â¢ÃƒÆ’Ã¢â‚¬Â¹Ãƒâ€¹Ã¢â‚¬Â¢Ã¢â€šÂ¬Ã…VAH-*;[5][6] Spanish: [neÃƒÆ’Ã†â€™Ãƒâ€šÃ¢â€šÂ¬Ã‚Â¹ÃƒÆ’Ã¢â‚¬Â¹Ãƒâ€šÃ¢â€šÂ¬Ã‚Â ?aða]) is a landlocked state in the Western United States.[c] It borders Oregon to the northwest, Idaho to the northeast, California to the west, Arizona to the southeast, and Utah to the east. Nevada is the seventh-most extensive, the 32nd-most populous, and the ninth-least densely populated U.S. state. Nearly three-quarters of Nevada's population live in Clark County, which contains the Las Vegas–Paradise metropolitan area,[7] including three of the state's four largest incorporated cities.[8] Nevada's capital is Carson City. Las Vegas is the largest city in the state.

Nevada is officially known as the "Silver State" because of the importance of silver to its history and economy. It is also known as the "Battle Born State" because it achieved statehood during the Civil War (the words "Battle Born" also appear on its state flag); due to the presidency of Abraham Lincoln, the Union benefited immensely from the support of newly awarded statehood by the infusion of the monetary support of nearly $400 million in silver ore generated at the time by the Comstock Lode.[9] It is also known as the "Sagebrush State", for the native plant of the same name; and as the "Sage-hen State".[10] The state's name means "snowy" in Spanish, referring to Nevada's small overlap with the Sierra Nevada mountain range; however, the rest of Nevada is largely desert and semi-arid, much of it within the Great Basin. Areas south of the Great Basin are within the Mojave Desert, while Lake Tahoe and the Sierra Nevada lie on the western edge. In 2020, 80.1% of the state's land was managed by various jurisdictions of the U.S. federal government, both civilian and military.[11]

Native Americans of the Paiute, Shoshone, and Washoe tribes inhabit what is now Nevada. The first Europeans to explore the region were Spanish. They called the region *Nevada* (snowy) because of the snow which covered the mountains in winter, similar to the Sierra Nevada in Spain. The area formed from mostly Alta California and part of Nuevo México's territory within the Viceroyalty of New Spain, which gained independence as Mexico in 1821. The United States annexed the area in 1848 after its victory in the Mexican–American War, and it was incorporated as part of the New Mexico and Utah Territory in 1850. The discovery of

silver at the Comstock Lode in 1859 led to a population boom that became an impetus to the creation of Nevada Territory out of western Utah Territory in 1861. Nevada became the 36th state on October 31, 1864, as the second of two states added to the Union during the Civil War (the first being West Virginia).[12]

Nevada is known for its libertarian laws. In 1940, with a population of just over 110,000 people, Nevada was by far the least-populated state, with less than half the population of the next least-populous state, Wyoming.[13] However, legalized gambling and lenient marriage and divorce laws transformed Nevada into a major tourist destination in the 20th century.[14][15] Nevada is the only U.S. state where prostitution is legal, though it is illegal in its most populated regions – Clark County (Las Vegas), Washoe County (Reno) and Carson City (which, as an independent city, is not within the boundaries of any county). The tourism industry remains Nevada's largest employer,[16] with mining continuing as a substantial sector of the economy: Nevada is the fourth-largest producer of gold in the world.[17] It is the driest state. Droughts in Nevada, which are influenced by climate change, have been increasing in frequency and severity,[18] putting a further strain on Nevada's water security.

Etymology

[edit]

The name "Nevada" comes from the Spanish adjective *nevada* ([neÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹Ã†'Ã¢â€šÂ¬Ã…Â¡Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â ?aða]), meaning "snow-covered" or "snowy".[19] The state takes its name from the Nevada Territory, which in turn was named for the Sierra Nevada.[20]

Nevadans pronounce the second syllable with the "a" of "apple" (/n ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¾Ãƒ â€šÃ‚Â¢ ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹Ã†'Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹Ã†'Ã¢â€šÂ¬Ã‚Â væd ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¾Ãƒ â€šÃ‚Â¢/) while some people from outside of the state pronounce it with the "a" of "palm" (/n ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¾Ãƒ â€šÃ‚Â¢ ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹Ã†'Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹Ã†'Ã¢â€šÂ¬Ã‚Â v ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¡Ã‚Â¬Ã‚Ãƒ â€¹Ã…â€œÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ dÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¾Ãƒ â€šÃ‚Â¢/).[21] Although the quality, but not the length, of the latter pronunciation is closer to the Spanish pronunciation (Spanish /a/ is open central [ä],[22] whereas American English /ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¡Ã‚Â¬Ã‚Ãƒ â€¹Ã…â€œÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€š varies from back [ÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â°ÃƒÆ'Ã‚Â¢Ã†'Ã¢â€šÂ¬Ã…Â¡Ã‚Â¬Ã‚Ãƒ â€¹Ã…â€œÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€š to central [äÃƒÆ'Ã†â€™Ãƒ Â¢Ã¢â€šÂ¬Ã‚Â¹ÃƒÆ'Ã¢â‚¬Â¹Ã†'Ã¢â€šÂ¬Ã…Â¡Ãƒ â€šÃ‚Â•],[23] it is not the pronunciation used by Nevadans. State Assemblyman Harry Mortenson proposed a bill to recognize the alternative pronunciation of Nevada,[24] though the bill was not supported by most legislators and never received a vote. The Nevadan pronunciation is the one used by the

state legislature. At one time, the state's official tourism organization, TravelNevada, stylized the name of the state as "NevÃƒÆ'Ã†â€™Ãƒâ€šÃ¢Ã¢â€šÂ¬Ã…Â¾Ãƒâ€šÃ¢â‚¬Â Ãƒâ€šÃ¢Ã¢â€šÂ¬Ã¢â€žÂ¢da", with a breve over the *a* indicating the locally preferred pronunciation,[25] which was also available as a license plate design until 2007.[26]

History

[edit]
Main article: History of Nevada
Further information: History of Las Vegas

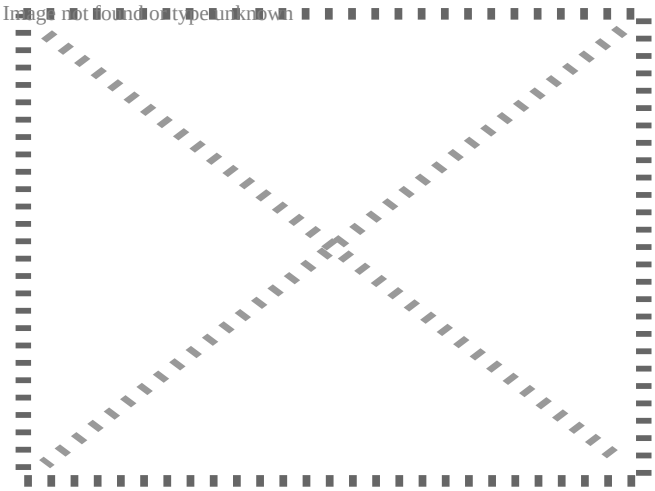
Indigenous history

[edit]

Before the arrival of Europeans, the earliest inhabitants were Indigenous tribes including the Goshute, Southern Paiute, Mohave, and Wašišiw (Washoe people).[27][28]

Before 1861

[edit]
Main articles: The Californias § History, and Alta California
Further information: Treaty of Córdoba, Declaration of Independence of the Mexican Empire, First Mexican Empire, Provisional Government of Mexico, First Mexican Republic, Centralist Republic of Mexico, Siete Leyes, and Definitive treaty of peace and friendship between Mexico and Spain



Mexico in 1824. Alta California included today's Nevada.

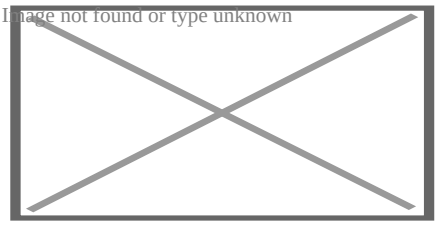
Francisco Garcés was the first European in the area.[29] Nevada was annexed as a part of the Spanish Empire in the northwestern territory of New Spain. Administratively, the area of

Nevada was part of the Commandancy General of the Provincias Internas in the Viceroyalty of New Spain. Nevada became a part of Alta California (Upper California) province in 1804 when the Californias were split. With the Mexican War of Independence won in 1821, the province of Alta California became a territory (state) of Mexico, with a small population.

Jedediah Smith entered the Las Vegas Valley in 1827, Peter Skene Ogden traveled the Humboldt River in 1828, and in 1829 a merchant from Nuevo México named Antonio Armijo streamlined travel along the Old Spanish Trail. Chronicling Armijo's route his scout Raphael Rivera was the first to name Las Vegas, in an 1830 report to governor José Antonio Chaves. Following the suggestions by Rivera of a spring, on the published expedition's map, located in the Las Vegas area John C. Frémont set up camp in Las Vegas Springs in 1844. In 1847, Mormons established the State of Deseret, claiming all of Nevada within the Great Basin and the Colorado watershed. They built the first permanent settlement in what is now Nevada, called Mormon Station (now Genoa), in 1851. Additionally, in June 1855, William Bringhurst and 29 other Mormon missionaries built the first permanent structure, a 150-foot square adobe fort, northeast of downtown Las Vegas, converging on the Spanish and Mormon Roads. The fort remained under Salt Lake City's control until the winter of 1858–1859, and the route remained largely under the control of Salt Lake City and Santa Fe tradespersons.

As such, these pioneers laid the foundation for the emergence of the initial settlements between the Sierra Nevadas and Mojave Desert and within the Las Vegas Valley. The enduring influence of New Mexico and Utah culture has since profoundly impacted Nevada's identity, manifesting through New Mexican cuisine and Mormon foodways or New Mexican and Mormon folk musics, into the fabric of Nevada's own cultural landscape.

As a result of the Mexican–American War and the Treaty of Guadalupe Hidalgo, Mexico permanently lost Alta California in 1848. The new areas acquired by the United States continued to be administered as territories. As part of the Mexican Cession (1848) and the subsequent California Gold Rush that used Emigrant Trails through the area, the state's area evolved first as part of the Utah Territory and New Mexico Territory, then the Nevada Territory (March 2, 1861; named for the Sierra Nevada).[30]

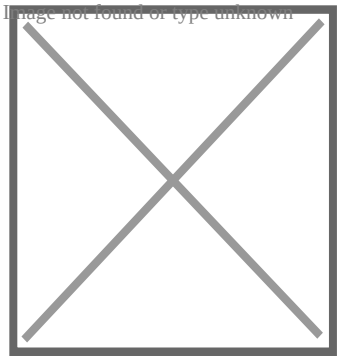


Sculpture representing a steam locomotive, in Ely, Nevada. Early locomotives played an important part in Nevada's mining industry.

The first discovery of a major U.S. deposit of silver ore occurred in Comstock Lode under Virginia City, Nevada, in 1859.

Separation from Utah Territory

[edit]
Main articles: Utah Territory, Organic act § List of organic acts, Nevada Territory, and Nevada in the American Civil War

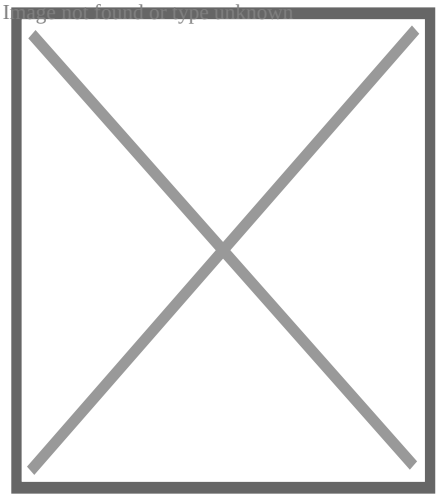


Nevada territory in 1861

On March 2, 1861, the Nevada Territory separated from the Utah Territory and adopted its current name, shortened from *The Sierra Nevada* (Spanish for "snow-covered mountain range"). The 1861 southern boundary is commemorated by Nevada Historical Markers 57 and 58 in Lincoln and Nye counties.

Statehood (1864)

[edit]
Main articles: Admission to the Union, List of U.S. states by date of admission to the Union, Nevada in the American Civil War, and Constitution of Nevada

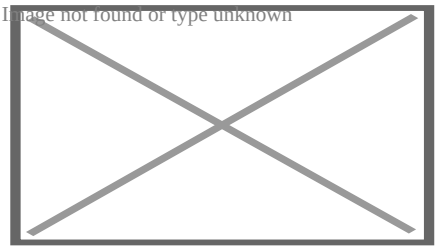


Map of the States of California and Nevada by SB Linton, 1876

Eight days before the presidential election of 1864, Nevada became the 36th state in the Union, despite lacking the minimum 60,000 residents that Congress typically required a potential state to have in order to become a state.[31] At the time, Nevada's population was little more than 40,000.[32] Governor Nye was frustrated that previous attempts to send the constitution via overland mail and by sea had failed by October 24, so on October 26 the full

text was sent by telegraph at a cost of $4,303.27[33][d] – the most costly telegraph on file at the time for a single dispatch, equivalent to $86,514.04 in 2024. Finally, the response from Washington came on October 31, 1864: "the pain is over, the child is born, Nevada this day was admitted into the Union". Statehood was rushed to the date of October 31 to help ensure Abraham Lincoln's reelection on November 8 and post-Civil War Republican dominance in Congress,[34] as Nevada's mining-based economy tied it to the more industrialized Union. As it turned out, however, Lincoln and the Republicans won the election handily and did not need Nevada's help.

Nevada is one of only two states to significantly expand its borders after admission to the Union, with the other being Missouri, which acquired additional territory in 1837 due to the Platte Purchase. In 1866 another part of the western Utah Territory was added to Nevada in the eastern part of the state, setting the current eastern boundary. Nevada achieved its current southern boundaries on January 18, 1867, when it absorbed the portion of Pah-Ute County in the Arizona Territory west of the Colorado River, essentially all of present-day Nevada south of the 37th parallel. The transfer was prompted by the discovery of gold in the area, and officials thought Nevada would be better able to oversee the expected population boom. This area includes all of what is now Clark County and the southern-most portions of Esmeralda, Lincoln, and Nye counties.[35]



Bottle house in the mining ghost town of Rhyolite; built in 1906 with about 50,000 bottles[36]

Mining shaped Nevada's economy for many years (see *Silver mining in Nevada*). When Mark Twain lived in Nevada during the period described in *Roughing It*, mining had led to an industry of speculation and immense wealth. Both mining and population temporarily declined in the late 19th century. However, the rich silver strike at Tonopah in 1900, followed by strikes in Goldfield and Rhyolite, created a second mining boom in Nevada and Nevada's population.

Gambling and labor

[edit]

Unregulated gambling was commonplace in the early Nevada mining towns but was outlawed in 1909 as part of a nationwide anti-gambling crusade. Because of subsequent declines in mining output and the decline of the agricultural sector during the Great Depression, Nevada again legalized gambling on March 19, 1931, with approval from the legislature. Governor Fred B. Balzar's signature enacted the most liberal divorce laws in the country and open gambling.

The reforms came just eight days after the federal government presented the $49 million construction contract for Boulder Dam (now Hoover Dam).[37]

Nuclear testing

[edit]

The Nevada Test Site, 65 miles (105 km) northwest of the city of Las Vegas, was founded on January 11, 1951, for the testing of nuclear weapons. The site consists of about 1,350 square miles (3,500 km^2) of the desert and mountainous terrain. Nuclear testing at the Nevada Test Site began with a 1 kiloton of TNT (4.2 TJ) nuclear bomb dropped on Frenchman Flat on January 27, 1951. The last atmospheric test was conducted on July 17, 1962, and the underground testing of weapons continued until September 23, 1992. The location is known for having the highest concentration of nuclear-detonated weapons in the U.S.

Over 80% of the state's area is owned by the federal government. This is mainly because homesteads were not permitted in large enough sizes to be viable in the arid conditions that prevail throughout desert Nevada. Instead, early settlers would homestead land surrounding a water source, and then graze livestock on the adjacent public land, which is useless for agriculture without access to water (this pattern of ranching still prevails).

2020s

[edit]

The COVID-19 pandemic was confirmed in Nevada on March 5, 2020. Because of concerns about coronavirus disease 2019 (COVID-19), Nevada governor Steve Sisolak declared a state of emergency on March 12, 2020. Four days later, Nevada reported its first death. On March 17, 2020, Sisolak ordered the closure of non-essential businesses in the state to help prevent the spread of the coronavirus.

Various protests were held against Sisolak's shutdown order beginning in April 2020. Nevada launched the first phase of its reopening on May 9, 2020. Restaurants, retailers, outdoor malls, and hair salons were among the businesses allowed to reopen, but with precautions in place, such as limiting occupancy to 50 percent. A second phase went into effect on May 29, 2020. It allowed for the reopening of state parks and businesses such as bars, gyms, and movie theaters. Casinos began reopening on June 4, 2020.

Geography

[edit]
See also: Geography of Nevada

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This article **needs additional citations for verification**. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.

Find sources: "Nevada" – news · newspapers · books · scholar · JSTOR *(December 2021) (Learn how and when to remove this message)*

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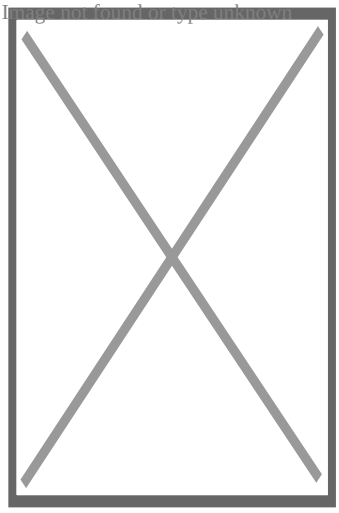

Mountains west of Las Vegas in the Mojave Desert

A landscape shot of a long, dry valley. The sky is partially clouded over but blue sky breaks throu

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A valley near Pyramid Lake

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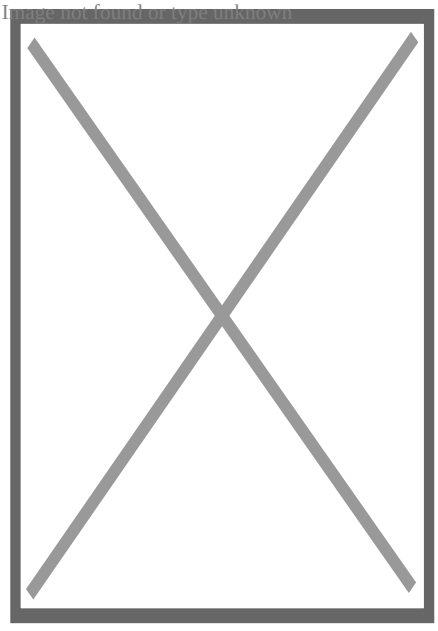


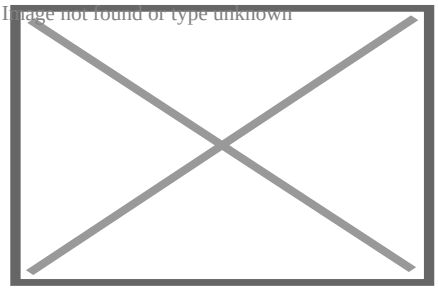
Topographic map of Nevada

Nevada is almost entirely within the Basin and Range Province and is broken up by many north–south mountain ranges. Most of these ranges have endorheic valleys between them.

Much of the northern part of the state is within the Great Basin, a mild desert that experiences hot temperatures in the summer and cold temperatures in the winter. Occasionally, moisture from the Arizona Monsoon will cause summer thunderstorms; Pacific storms may blanket the area with snow. The state's highest recorded temperature was 125 °F (52 °C) in Laughlin (elevation of 605 feet or 184 meters) on June 29, 1994.[38] The coldest recorded temperature was ?52 °F (?47 °C) set in San Jacinto in 1972, in the northeastern portion of the state.[38]

The Humboldt River crosses the state from east to west across the northern part of the state, draining into the Humboldt Sink near Lovelock. Several rivers drain from the Sierra Nevada eastward, including the Walker, Truckee, and Carson rivers. All of these rivers are endorheic basins, ending in Walker Lake, Pyramid Lake, and the Carson Sink, respectively. However, not all of Nevada is within the Great Basin. Tributaries of the Snake River drain the far north, while the Colorado River, which also forms much of the boundary with Arizona, drains much of southern Nevada.

The mountain ranges, some of which have peaks above 13,000 feet (4,000 m), harbor lush forests high above desert plains, creating sky islands for endemic species. The valleys are often no lower in elevation than 3,000 feet (910 m), while some in central Nevada are above 6,000 feet (1,800 m).



Little Finland rock formation in Nevada

The southern third of the state, where the Las Vegas area is situated, is within the Mojave Desert. The area receives less rain in the winter but is closer to the Arizona Monsoon in the summer. The terrain is also lower, mostly below 4,000 feet (1,200 m), creating conditions for hot summer days and cool to chilly winter nights.

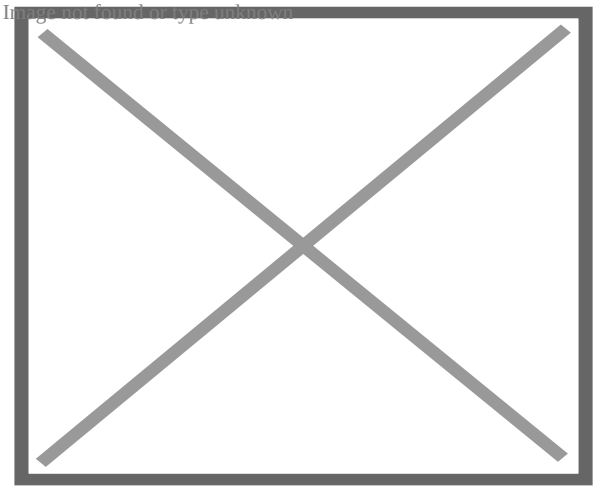
Nevada and California have by far the longest diagonal line (in respect to the cardinal directions) as a state boundary at just over 400 miles (640 km). This line begins in Lake Tahoe nearly 4 miles (6.4 km) offshore (in the direction of the boundary), and continues to the Colorado River where the Nevada, California, and Arizona boundaries merge 12 miles (19 km) southwest of the Laughlin Bridge.

The largest mountain range in the southern portion of the state is the Spring Mountain Range, just west of Las Vegas. The state's lowest point is along the Colorado River, south of Laughlin.

Nevada has 172 mountain summits with 2,000 feet (610 m) of prominence. Nevada ranks second, after Alaska, for the greatest number of mountains in the United States, followed by California, Montana, and Washington.[39]

Climate

[edit]
Further information: Climate change in Nevada



Köppen climate types of Nevada, using 1991–2020 climate normals.

Nevada is the driest state in the United States.[40] It is made up of mostly desert and semi-arid climate regions, and, with the exception of the Las Vegas Valley, the average summer diurnal temperature range approaches 40 °F (22 °C) in much of the state. While winters in northern Nevada are long and fairly cold, the winter season in the southern part of the state tends to be of short duration and mild. Most parts of Nevada receive scarce precipitation during the year. The most rain that falls in the state falls on the east and northeast slopes of the Sierra Nevada.

The average annual rainfall per year is about 7 inches (180 mm); the wettest parts get around 40 inches (1,000 mm). Nevada's highest recorded temperature is 125 °F (52 °C) at Laughlin on June 29, 1994, and the lowest recorded temperature is ?50 °F (?46 °C) at San Jacinto on January 8, 1937. Nevada's 125 °F (52 °C) reading is the third highest statewide record high temperature of a U.S. state, just behind Arizona's 128 °F (53 °C) reading and California's 134 °F (57 °C) reading.

Average daily maximum and minimum temperatures for selected cities in Nevada[41]

Location	July (°F)		July (°C)		December (°F)		December (°C)	
	Max	Min	Max	Min	Max	Min	Max	Min
Las Vegas	106	81	41	27	56	38	13	3

Reno	92	57	33	14	45	25	7	–4
Carson City	89	52	32	11	45	22	7	–5
Elko	90	50	32	10	37	14	2	–9
Fallon	92	54	33	12	45	19	7	–7
Winnemucca	93	52	34	11	41	17	5	–8
Laughlin	112	80	44	27	65	43	18	6

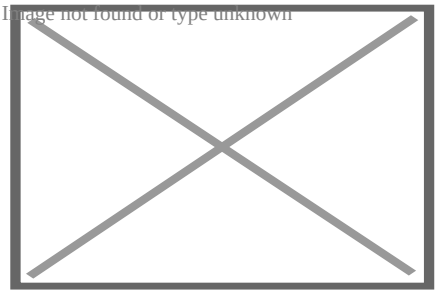
Flora and fauna

[edit]
Main article: Fauna of Nevada

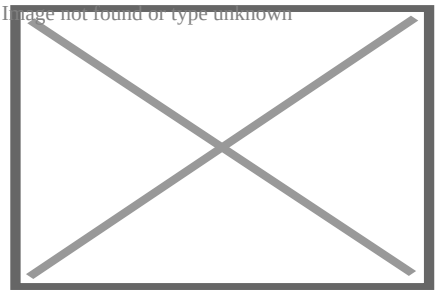
The vegetation of Nevada is diverse and differs by state area. Nevada contains six biotic zones : alpine, sub-alpine, ponderosa pine, pinion-juniper, sagebrush and creosotebush.[42]

Counties

[edit]
Further information: List of counties in Nevada



The Las Vegas Strip looking South



Carson City Mint in Carson City. Carson City is an independent city and the capital of Nevada.

Nevada is divided into political jurisdictions designated as *counties*. Carson City is officially a consolidated municipality, meaning it legally functions as both a city and a county. As of 1919, there were 17 counties in the state, ranging from 146 to 18,159 square miles (380 to 47,030 km ^{2}).

Lake County, one of the original nine counties formed in 1861, was renamed Roop County in 1862. Part of the county became Lassen County, California, in 1864, resolving border uncertainty. In 1883, Washoe County annexed the portion that remained in Nevada.[43]

In 1969, Ormsby County was dissolved and the Consolidated Municipality of Carson City was created by the Legislature in its place coterminous with the old boundaries of Ormsby County.

Bullfrog County was formed in 1987 from part of Nye County. After the creation was declared unconstitutional, the county was abolished in 1989.[43]

Humboldt County was designated as a county in 1856 by Utah Territorial Legislature and again in 1861 by the new Nevada Legislature.

Clark County is the most populous county in Nevada, accounting for nearly three-quarters of its residents. Las Vegas, Nevada's most populous city, has been the county seat since the county was created in 1909 from a portion of Lincoln County, Nevada. Before that, it was a part of Arizona Territory. Clark County attracts numerous tourists: An estimated 44 million people visited Clark County in 2014.[44]

Washoe County is the second-most populous county of Nevada. Its county seat is Reno. Washoe County includes the Reno–Sparks metropolitan area.

Lyon County is the third most populous county. It was one of the nine original counties created in 1861. It was named after Nathaniel Lyon, the first Union General to be killed in the Civil War. Its current county seat is Yerington. Its first county seat was established at Dayton on November 29, 1861.[45]

Nevada counties

County name	County seat	Year founded	2022 population [46]	Percent of total	Area		Percent of total	Population density	
					sq mi	km^2		per sq mi	per km^2
Carson City	Carson City	1861	58,130	1.83 %	157	410	0.14 %	370.25	142.95
Churchill	Fallon	1861	25,843	0.81 %	5,024	13,010	4.54 %	5.14	1.98
Clark	Las Vegas	1908	2,322,985	73.10 %	8,061	20,880	7.29 %	288.18	111.27
Douglas	Minden	1861	49,628	1.56 %	738	1,910	0.67 %	67.25	25.97
Elko	Elko	1869	54,046	1.70 %	17,203	44,560	15.56 %	3.14	1.21
Esmeralda	Goldfield	1861	744	0.02 %	3,589	9,300	3.25 %	0.21	0.081
Eureka	Eureka	1869	1,863	0.06 %	4,180	10,800	3.78 %	0.45	0.17
Humboldt	Winnemucca	1856/1861	17,272	0.54 %	9,658	25,010	8.73 %	1.79	0.69
Lander	Battle Mountain	1861	5,766	0.18 %	5,519	14,290	4.99 %	1.04	0.40
Lincoln	Pioche	1867	4,482	0.14 %	10,637	27,550	9.62 %	0.42	0.16

Lyon	Yerington	1861	61,585	1.94 %	2,024	5,240	1.83 %	30.43	11.75
Mineral	Hawthorne	1911	4,525	0.14 %	3,813	9,880	3.45 %	1.19	0.46
Nye	Tonopah	1864	54,738	1.72 %	18,199	47,140	16.46 %	3.01	1.16
Pershing	Lovelock	1919	6,462	0.20 %	6,067	15,710	5.49 %	1.07	0.41
Storey	Virginia City	1861	4,170	0.13 %	264	680	0.24 %	15.80	6.10
Washoe	Reno	1861	496,745	15.63 %	6,542	16,940	5.92 %	75.93	29.32
White Pine	Ely	1869	8,788	0.28 %	8,897	23,040	8.05 %	0.99	0.38
Totals	Counties: 17		3,177,772		110,572	286,380		28.74	11.10

Settlements

[edit]

Largest cities or towns in Nevada Source:[47]

Rank	Name	County	Pop.
1	Las Vegas	Clark	641,903
2	Henderson	Clark	317,610
3	Reno	Washoe	264,165
4	North Las Vegas	Clark	262,527
5	Enterprise	Clark	221,831
6	Spring Valley	Clark	215,597
7	Sunrise Manor	Clark	205,618
8	Paradise	Clark	191,238
9	Sparks	Washoe	108,445
10	Carson City	Carson City	58,639

Las Vegas

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Las Vegas Henderson

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Henderson

Reno

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Reno

North Las Vegas

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North Las Vegas

Parks and recreation areas

[edit]

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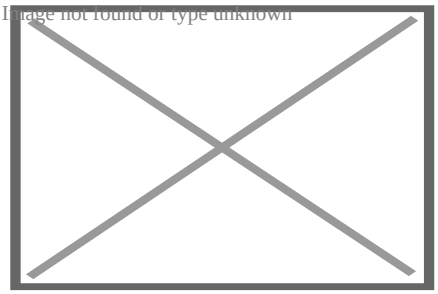
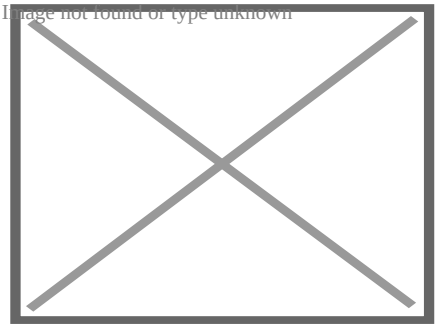
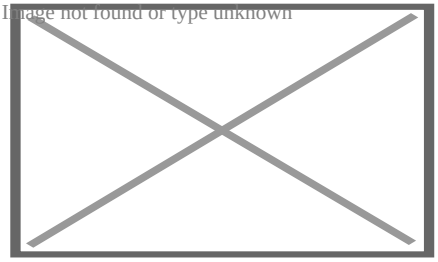
Red Rock Canyon National Conservation Area, Calico basin



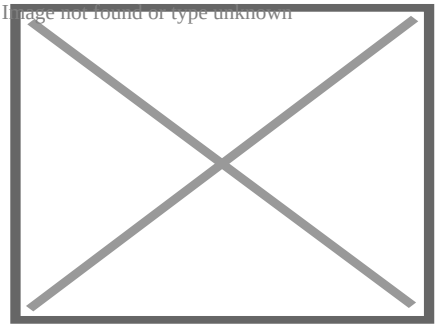
Great Basin National Park



The quartzite of Doso Doyabi in Great Basin National Park



Valley of Fire State Park



Mount Charleston

Recreation areas maintained by the federal government

[edit]

Northern Nevada

[edit]

- Basin and Range National Monument
- Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area
- California National Historic Trail
- Great Basin National Park
- Humboldt-Toiyabe National Forest
- Lake Tahoe Basin Management Unit
- Pony Express National Historic Trail
- Sheldon National Wildlife Refuge

Southern Nevada

[edit]

- Ash Meadows National Wildlife Preserve
- Avi Kwa Ame National Monument
- Basin and Range National Monument
- Bootleg Canyon Mountain Bike Park
- Death Valley National Park
- Desert National Wildlife Refuge
- Gold Butte National Monument
- Humboldt-Toiyabe National Forest
- Inyo National Forest
- Lake Mead National Recreation Area
- Moapa Valley National Wildlife Refuge
- Mount Charleston and the Mount Charleston Wilderness
- Old Spanish National Historic Trail
- Pahranagat National Wildlife Refuge
- Red Rock Canyon National Conservation Area
- Sloan Canyon National Conservation Area
- Spring Mountains and the Spring Mountains National Recreation Area
- Tule Springs Fossil Beds National Monument

Wilderness

[edit]
Further information: List of wilderness areas in Nevada

There are 68 designated wilderness areas in Nevada, protecting some 6,579,014 acres (2,662,433 ha) under the jurisdiction of the National Park Service, U.S. Forest Service, and Bureau of Land Management.[48]

State parks

[edit]
Further information: List of Nevada state parks

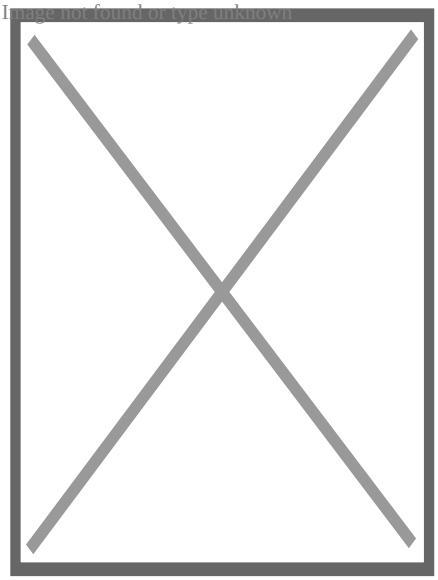
The Nevada state parks comprise protected areas managed by the state of Nevada, including state parks, state historic sites, and state recreation areas. There are 24 state park units, including Van Sickle Bi-State Park which opened in July 2011 and is operated in partnership with the adjacent state of California.[49]

Demographics

[edit]

Population

[edit]
See also: Hispanics and Latinos in Nevada and Basque Americans in Nevada



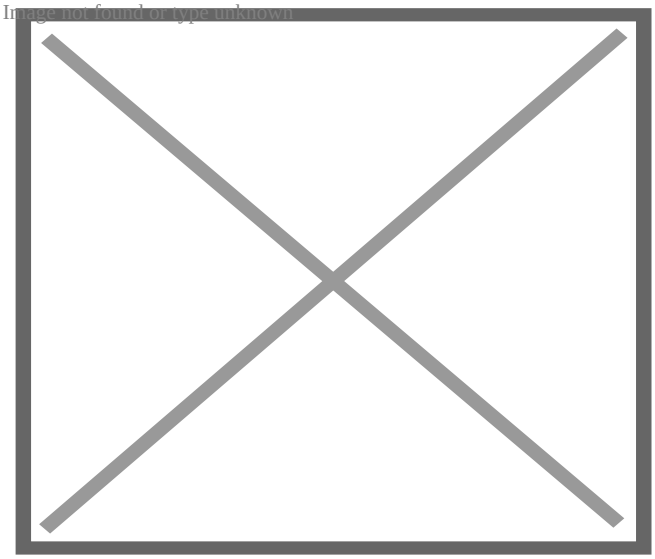
Population density map of Nevada

Historical population

Census	Pop.	Note	%±
1860	6,857		—
1870	42,941		526.2%

1880	62,266	45.0%
1890	47,355	?23.9%
1900	42,335	?10.6%
1910	81,875	93.4%
1920	77,407	?5.5%
1930	91,058	17.6%
1940	110,247	21.1%
1950	160,083	45.2%
1960	285,278	78.2%
1970	488,738	71.3%
1980	800,493	63.8%
1990	1,201,833	50.1%
2000	1,998,257	66.3%
2010	2,700,551	35.1%
2020	3,104,614	15.0%
2024 (est.)	3,267,467	5.2%

Source: 1910–2020[50]



Ethnic origins in Nevada

The United States Census Bureau determined Nevada had a population of 3,104,614 at the 2020 U.S. census. In 2022, the estimated population of Nevada was 3,177,772, an increase of 73,158 residents (2.36%) since the 2020 census.[51] Nevada had the highest percentage growth in population from 2017 to 2018. At the 2020 census, 6.0% of the state's population were reported as under 5, 22.5% were under 18, and 16.1% were 65 or older. Females made up about 49.8% of the population. 19.1% of the population was reported as foreign-born.

Since the 2020 census, the population of Nevada had a natural increase of 2,374 (the net difference between 42,076 births and 39,702 deaths); and an increase due to net migration of 36,605 (of which 34,280 was due to domestic and 2,325 was due to international migration).[52]

The center of population of Nevada is in southern Nye County.[53] In this county, the unincorporated town of Pahrump, 60 miles (97 km) west of Las Vegas on the California state line, has grown very rapidly from 1980 to 2020. At the 2020 census, the town had 44,738 residents.[54] Las Vegas grew from a gulch of 100 people in 1900 to 10,000 by 1950 to 100,000 by 1970, and was America's fastest-growing city and metropolitan area from 1960 to 2000.

From about the 1940s until 2003, Nevada was the fastest-growing state in the U.S. percentage-wise. Between 1990 and 2000, Nevada's population increased by 66%, while the nation's population increased by 13%. More than two-thirds of the population live in Clark County, which is coextensive with the Las Vegas metropolitan area. Thus, in terms of population, Nevada is one of the most centralized states in the nation.

Henderson and North Las Vegas are among the top 20 fastest-growing U.S. cities with populations over 100,000. The rural community of Mesquite 65 miles (105 km) northeast of Las Vegas was an example of micropolitan growth in the 1990s and 2000s. Other desert towns like Indian Springs and Searchlight on the outskirts of Las Vegas have seen some growth as well.

Since 1950, the rate of population born in Nevada has never peaked above 27 percent, the lowest rate of all states. In 2012, only 25% of Nevadans were born in Nevada.[55]

According to HUD's 2022 Annual Homeless Assessment Report, there were an estimated 7,618 homeless people in Nevada.[56][57]

Race and ethnicity

[edit]

Nevada – Racial and Ethnic Composition

(*NH = Non-Hispanic*)

Note: the US Census treats Hispanic/Latino as an ethnic category. This table excludes Latinos from the racial categories and assigns them to a separate category. Hispanics/Latinos may be of any race.

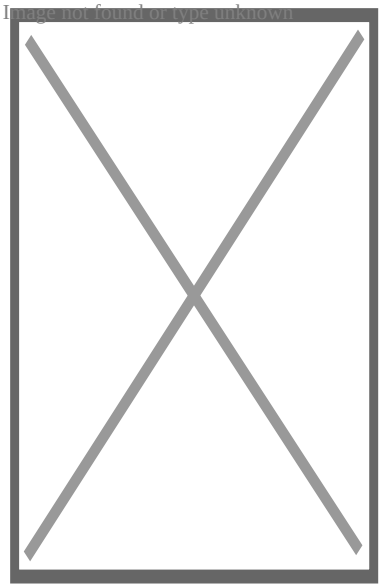
Race / Ethnicity	Pop 2000[58]	Pop 2010[59]	Pop 2020[60]	% 2000	% 2010	% 2020
White alone (NH)	1,303,001	1,462,081	1,425,952	65.21%	54.14%	45.93%
Black or African American alone (NH)	131,509	208,058	291,960	6.58%	7.70%	9.40%
Native American or Alaska Native alone (NH)	21,397	23,536	23,392	1.07%	0.87%	0.75%

Asian alone (NH)	88,593	191,047	265,991	4.43%	7.07%	8.57%
Pacific Islander alone (NH)	7,769	15,456	22,970	0.39%	0.57%	0.74%
Some Other Race alone (NH)	2,787	4,740	17,171	0.14%	0.18%	0.55%
Mixed Race/Multi-Racial (NH)	49,231	79,132	166,921	2.46%	2.93%	5.38%
Hispanic or Latino (any race)	393,970	716,501	890,257	19.72%	26.53%	28.68%
Total	**1,998,257**	**2,700,551**	**3,104,614**	**100.00%**	**100.00%**	**100.00%**

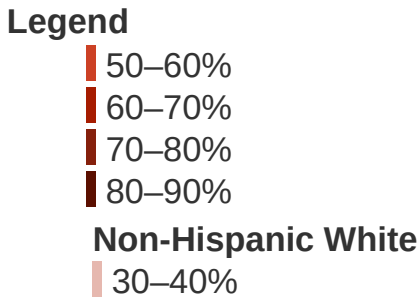
Ethnic composition as of the 2020 census

Race and Ethnicity[61]	Alone	Total
White (non-Hispanic)	45.9%	50.6%
Hispanic or Latino[e]	—	28.7%
Multiracial	—	14.0%
African American (non-Hispanic)	9.4%	11.1%
Asian	8.6%	10.7%
Native American	0.8%	2.1%
Pacific Islander	0.7%	1.5%
Other	0.6%	1.4%

According to the 2022 American Community Survey, 30.3% of Nevada's population were of Hispanic or Latino origin (of any race): Mexican (22%), Cuban (1.5%), Salvadoran (1.5%), Puerto Rican (1%), and other Hispanic or Latino origin (4.3%).[62] The largest European ancestry groups were: German (8.9%), English (8.1%), Irish (7.2%), and Italian (4.8%).[63] The largest Asian ancestry groups in the state were Filipino (6.4%) and Chinese (1.9%).[64]



Map of counties in Nevada by racial plurality, per the 2020 census



In 1980, non-Hispanic whites made up 83.2% of the state's population.[65]

Nevada historical racial composition

Racial composition	1970[65]	1980	1990[65]	2000[66]	2010[67]	2020[68]
White	91.7%	87.5%	84.3%	75.2%	66.2%	51.2%
Black	5.7%	6.4%	6.6%	6.8%	8.1%	9.8%
Asian	0.7%	1.8%	3.2%	4.5%	7.2%	8.8%
Native	1.6%	1.7%	1.6%	1.3%	1.2%	1.4%
Native Hawaiian and other Pacific Islander	–	–	–	0.4%	0.6%	0.8%
Other race	0.3%	2.7%	4.4%	8.0%	12.0%	14.0%
Two or more races	–	–	–	3.8%	4.7%	14.0%
Hispanic or Latino (of any race)	5.6%	6.7%	10.4%	19.7%	26.5%	28.7%
Non-Hispanic white	86.7%	83.2%	78.7%	65.2%	54.1%	45.9%

As of 2011, 63.6% of Nevada's population younger than age 1 were minorities.[69] Las Vegas is a majority-minority city. According to the United States Census Bureau estimates, as of July 1, 2018, non-Hispanic Whites made up 48.7% of Nevada's population.[70]

In Douglas, Mineral, and Pershing counties, a plurality of residents are of Mexican ancestry. In Nye County and Humboldt County, residents are mostly of German ancestry; Washoe County has many Irish Americans. Americans of English descent form pluralities in Lincoln County, Churchill County, Lyon County, White Pine County, and Eureka County.

Asian Americans have lived in the state since at least the 1850s, when the California gold rush brought thousands of Chinese miners to Washoe County. They were followed by a few hundred Japanese farmworkers in the late 19th century. By the late 20th century, many immigrants from China, Japan, Korea, the Philippines, Bangladesh, India, and Vietnam came to the Las Vegas metropolitan area. The city now has a significant Asian American community, with a mostly Chinese and Taiwanese area known as "Chinatown" west of I-15 on Spring Mountain Road. Filipino Americans form the largest Asian American group in the state, with a population of more than 202,000. They comprise 59.8% of the Asian American population in Nevada and constitute about 6.4% of the entire state's population.[71]

Mining booms drew many Greek and Eastern European immigrants to Nevada.[72] In the early twentieth century, Greeks, Slavs, Danes, Japanese, Italians, and Basques poured into Nevada.[73] Chileans were found in the state as early as 1870.[74] During the mid-1800s, a significant number of European immigrants, mainly from Ireland, England and Germany, arrived in the state with the intention of capitalizing on the thriving mining sector in the region.[75]

Native American tribes in Nevada are the Northern and Southern Paiute, Western Shoshone, Goshute, Hualapai, Washoe, and Ute tribes.[76]

Whites remain the largest racial or ethnic group in Nevada.[77] Hispanics are the fastest growing ethnic group in Nevada.[78] There is a growing Mexican and Central American population in Nevada. Many of Nevada's Latino immigrants are from Mexico, Guatemala and El Salvador.[79] Nevada also has a growing multiracial population.[80]

The top countries of origin for immigrants in Nevada were Mexico (39.5 percent of immigrants), the Philippines (14.3 percent), El Salvador (5.2 percent), China (3.1 percent), and Cuba (3 percent).[81]

The majority of people in Nevada are of white (European) ancestry. A small portion trace their ancestry to Basque people recruited as sheepherders. Hispanics in Nevada are mainly of Mexican and Cuban heritage. Latinos comprise about one-fourth of Nevada's residents and are concentrated in the southeast in Nevada. African Americans live mainly in the Las Vegas and Reno area and constitute less than one-tenth of the population. Native Americans of the Paiute, Shoshone, and Washoe tribes live on several reservations in the state and make up a small fraction of Nevada's population.[82]

The most common ancestries in Nevada include Mexican, German, Irish, English, Italian and Asian.[83]

Nevada is the third most diverse state in the country, behind only Hawaii and California.[84][85]

Birth data

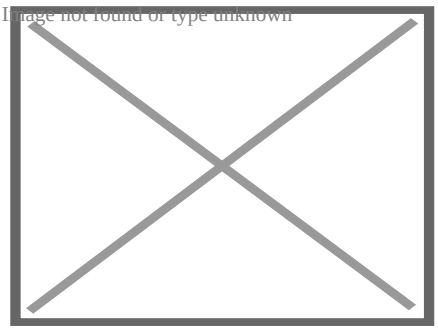
Note: Births within the table do not add up, due to Hispanics being counted both by their ethnicity and by their race, giving a higher overall number.

Live Births by Single Race/Ethnicity of Mother

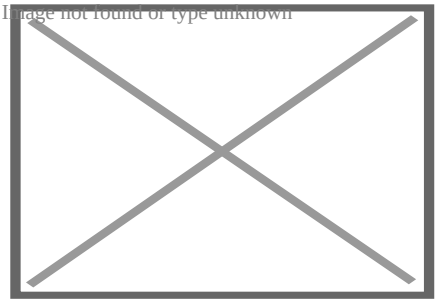
Race	2013[86]	2014[87]	2015[88]	2016[89]	2017[90]	2018[91]	2019[92]	2020[93]	2021[94]	2022[95]
White	27,293 (77.9%)	27,638 (77.1%)	27,648 (76.2%)	...	...	...	...	...	...	...
Non-Hispanic White	14,951 (42.7%)	15,151 (42.2%)	14,937 (41.2%)	13,918 (38.4%)	13,171 (36.8%)	13,021 (36.5%)	12,479 (35.6%)	11,602 (34.5%)	11,800 (35.0%)	10,961 (33.0%)

Black	4,215 (12.0%)	4,603 (12.8%)	4,803 (13.2%)	4,205 (11.6%)	4,471 (12.5%)	4,564 (12.8%)	4,514 (12.9%)	4,533 (13.5%)	4,457 (13.2%)	4,334 (13.1%)
Asian	3,097 (8.8%)	3,145 (8.8%)	3,337 (9.2%)	2,666 (7.3%)	2,685 (7.5%)	2,613 (7.3%)	2,587 (7.4%)	2,467 (7.3%)	2,372 (7.0%)	2,548 (7.7%)
Pacific Islander	...	...	...	308 (0.8%)	322 (0.9%)	340 (1.0%)	372 (1.1%)	358 (1.1%)	331 (1.0%)	358 (1.1%)
American Indian	425 (1.2%)	475 (1.3%)	510 (1.4%)	303 (0.8%)	305 (0.9%)	280 (0.8%)	277 (0.8%)	234 (0.7%)	239 (0.7%)	218 (0.7%)
Hispanic (of any race)	*12,718* (36.3%)	*13,006* (36.3%)	*13,225* (36.4%)	*13,391* (36.9%)	*13,176* (36.8%)	*13,307* (37.3%)	*13,238* (37.7%)	*12,763* (37.9%)	*12,842* (38.1%)	*13,019* (39.2%)
Total Nevada	**35,030** (100%)	**35,861** (100%)	**36,298** (100%)	**36,260** (100%)	**35,756** (100%)	**35,682** (100%)	**35,072** (100%)	**33,653** (100%)	**33,686** (100%)	**33,193** (100%)

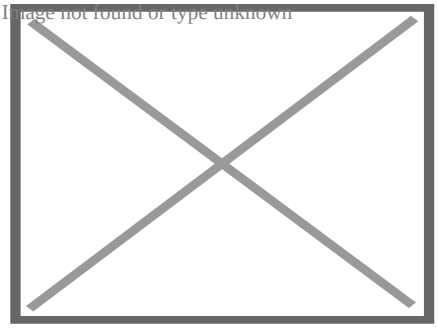
- Since 2016, data for births of White Hispanic origin are not collected, but included in one *Hispanic* group; persons of Hispanic origin may be of any race.



The Winnemucca Sand Dunes, north of Winnemucca



Downtown Reno



East Las Vegas suburbs

A small percentage of Nevada's population lives in rural areas. The culture of these places differs significantly from major metropolitan areas. People in these rural counties tend to be native Nevada residents, unlike in the Las Vegas and Reno areas, where the vast majority of the population was born in another state. The rural population is also less diverse in terms of race and ethnicity. Mining plays an important role in the economies of the rural counties, with tourism being less prominent.[96] Ranching also has a long tradition in rural Nevada.[97]

Locations by per capita income

[edit]
Further information: Nevada locations by per capita income

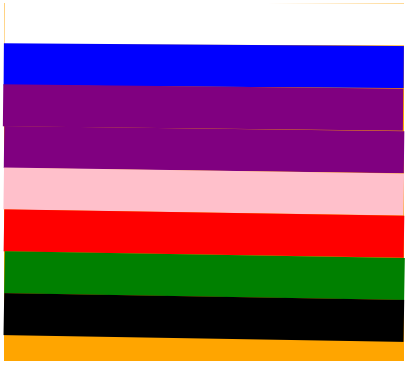
Ranked by per capita income in 2020

Rank	Place	Per capita income	County
1	Crystal Bay	$180,334	Washoe
2	Glenbrook	$102,963	Douglas
3	Zephyr Cove	$94,920	Douglas
4	Genoa	$86,185	Douglas
5	Incline Village	$74,294	Washoe
6	Kingsbury	$68,215	Douglas
7	Round Hill Village	$67,659	Douglas
8	East Valley	$67,169	Douglas
9	Summerlin South	$65,633	Clark
10	Mount Charleston	$57,583	Clark

Religion

[edit]
Religious self-identification, per Public Religion Research Institute's 2022 *American Values Survey*[98]

1. Unaffiliated (40%)
2. Protestantism (25%)
3. Catholicism (21%)
4. Mormonism (5%)
5. New Age (4%)
6. Jehovah's Witnesses (2%)
7. Judaism (2%)
8. Hinduism (1%)



Church attendance in Nevada is among the lowest of all U.S. states. In a 2009 Gallup poll only 30% of Nevadans said they attended church weekly or almost weekly, compared to 42% of all Americans (only four states were found to have a lower attendance rate than Nevada's).[99] In 2020, the Public Religion Research Institute determined 67% of the population were Christian,[100] reflecting a 1% increase in religiosity from 2014's separate Pew study.[101]

Major religious affiliations of the people of Nevada were, according to the Pew Research Center in 2014: Protestant 35%, Irreligious 28%, Roman Catholic 25%, Latter-day Saints 4%, Jewish 2%, Hindu less than 1%, Buddhist 0.5% and Muslim around 0.2%. Parts of Nevada (in the eastern parts of the state) are situated in the Mormon Corridor.

The largest denominations by number of adherents in 2010 were the Roman Catholic Church with 451,070; The Church of Jesus Christ of Latter-day Saints with 175,149; and the Southern Baptist Convention with 45,535; Buddhist congregations 14,727; BahaÃƒÆ'Ã†â€™Ãƒâ€¦Â ÃƒÆ'Ã¢â‚¬Å¡Ãƒâ€šÃ‚Â¼í Faith 1,723; and Muslim 1,700.[102]

Languages

[edit]
See also: Native American languages of Nevada

The most common non-English languages spoken in Nevada are Spanish, Tagalog and Chinese.[103] Indigenous languages of Nevada include Northern Paiute, the Southern Paiute, Shoshone, and Washo.[104]

The top seven languages spoken in Nevada according to the U.S. Census data are Spanish, Tagalog, Chinese, Vietnamese, Korean, Amharic, Arabic, and Thai.[105]

Native American tribes

[edit]

Historically what is now Nevada has been inhabited mainly by the Paiute, Shoshone, and Washoe.[106]

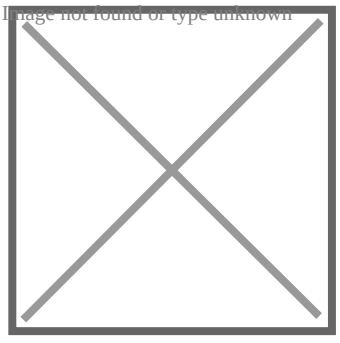
The largest Native American tribes in Nevada according to the 2010 census are listed in the table below:[107]

Tribal groupings with over 500 members in Nevada in 2010 census

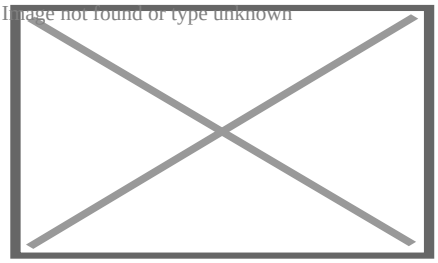
Tribal grouping	American Indian and Alaska Native alone	AIAN in combination with one or more other races	Total AIAN alone or in any combination
Total AIAN population	32062	23883	55945
Cherokee	1824	4376	6200
Paiute	4182	677	4859
Navajo	1926	671	2597
Paiute-Shoshone	2118	170	2288
Mexican American Indian	1222	708	1930
Shoshone	1388	400	1788
Choctaw	597	872	1469
Apache	719	690	1409
Sioux	702	626	1328
Blackfeet	284	877	1161
Te-Moak Tribes of Western Shoshone	1011	118	1129
Washoe	815	130	945
Ojibwe	494	338	832
Reno-Sparks Indian Colony	579	13	592
Iroquois	228	283	511
Tribe not specified	9413	10117	19530

Economy

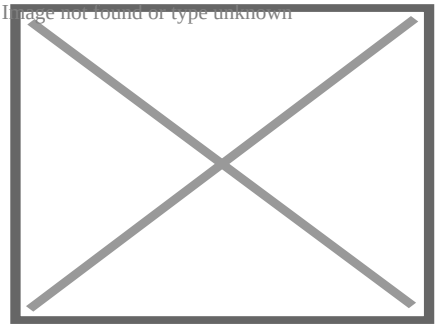
[edit]
See also: Nevada locations by per capita income



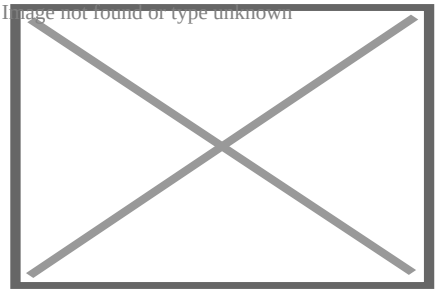
Nevada quarter



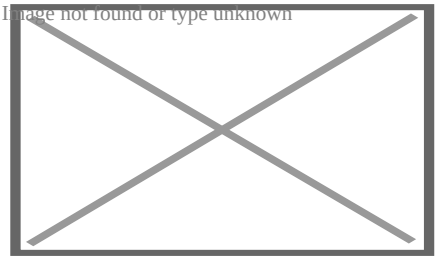
MGM Grand, with sign promoting it as The City of Entertainment



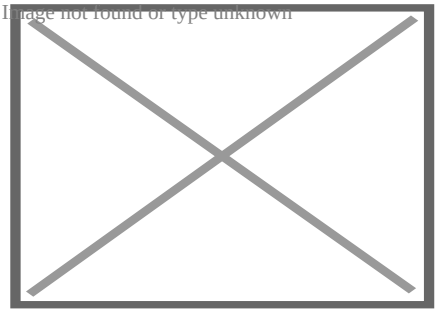
Lake Tahoe on the Nevada–California border



Goldstrike (Post-Betze) Mine in the Carlin Trend, the largest Carlin-type deposit in the world, containing more than 35,000,000 troy ounces (1,100 t) gold[108]



Cattle near the Bruneau River in Elko County



Ranching in Washoe County

The economy of Nevada is tied to tourism (especially entertainment and gambling related), mining, and cattle ranching. Nevada's industrial outputs are tourism, entertainment, mining, machinery, printing and publishing, food processing, and electric equipment. The Bureau of Economic Analysis[109][110] estimates Nevada's total state product in 2018 was $170 billion.[111] The state's per capita personal income in 2020 was $53,635, ranking 31st in the nation.[112] Nevada's state debt in 2012 was calculated to be $7.5 billion, or $3,100 per taxpayer.[113] As of May 2021, the state's unemployment rate was 7.8%.[114]

Further information: Las Vegas Global Economic Alliance

Mining

[edit]
Main articles: Gold mining in Nevada and Silver mining in Nevada

In portions of the state outside of the Las Vegas and Reno metropolitan areas mining plays a major economic role. By value, gold is by far the most important mineral mined. In 2022, 4,040,000 troy ounces (126 t) of gold worth $7.3 billion were mined in Nevada, and the state accounted for 4% of world gold production. Other minerals mined in Nevada include construction aggregates, copper, gypsum, diatomite and lithium.[115][116] Despite its rich deposits, the cost of mining in Nevada is generally high, and output is very sensitive to world commodity prices.

Cattle ranching

[edit]

Cattle ranching is a major economic activity in rural Nevada.[117] Nevada's agricultural outputs are cattle, hay, alfalfa, dairy products, onions, and potatoes. In 2020, there were an estimated 438,511 head of cattle and 71,699 head of sheep in Nevada.[118] Most of these animals forage on rangeland in the summer, with supplemental feed in the winter. Calves are generally shipped to out-of-state feedlots in the fall to be fattened for the market. Over 90% of Nevada's 653,891 acres (264,620 ha) of cropland is used to grow hay, mostly alfalfa, for livestock feed.[118]

Largest employers

[edit]

The largest employers in the state, as of the first fiscal quarter of 2011, are the following, according to the Nevada Department of Employment, Training and Rehabilitation:[119]

Rank	Employer

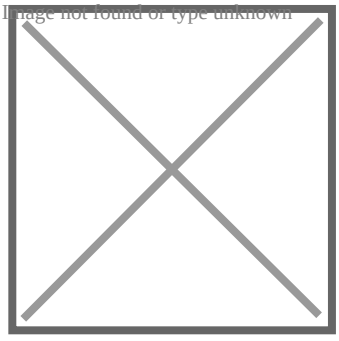
1 Clark County School District
2 Washoe County School District
3 Clark County
4 Wynn Las Vegas
5 Bellagio LLC
6 MGM Grand Hotel/Casino
7 Aria Resort & Casino LLC
8 Mandalay Bay Resort and Casino
9 Las Vegas Metropolitan Police Department
10 Caesars Palace
11 University of Nevada, Las Vegas
12 The Venetian Casino Resort
13 The Cosmopolitan of Las Vegas
14 The Mirage Casino-Hotel
15 University of Nevada, Reno
16 University Medical Center of Southern Nevada
17 The Palazzo Casino Resort
18 Flamingo Las Vegas Operating Company LLC
19 Encore Las Vegas
20 Luxor Las Vegas

Infrastructure

[edit]

Transportation

[edit]



State route shield

U.S. Route 50, also known as "The Loneliest Road in America"

Amtrak's *California Zephyr* train uses the Union Pacific's original transcontinental railroad line in daily service from Chicago to Emeryville, California, serving Elko, Winnemucca, and Reno. Las Vegas has had no passenger train service since Amtrak's Desert Wind was discontinued in 1997. Amtrak Thruway buses provide connecting service from Las Vegas to trains at Needles, California, Los Angeles, and Bakersfield, California; and from Stateline, Nevada, to Sacramento, California. There have been a number of proposals to re-introduce service to either Los Angeles or Southern California with the privately run Brightline West having begun construction in 2024.

The Union Pacific Railroad has some railroads in the north and south of Nevada. Greyhound Lines provide some bus service to the state.

Interstate 15 (I-15) passes through the southern tip of the state, serving Las Vegas and other communities. I-215 and I-515 also serve the Las Vegas metropolitan area. I-80 crosses through the northern part of Nevada, roughly following the path of the Humboldt River from Utah in the east and the Truckee River westward through Reno into California. It has a spur route, I-580. Nevada also is served by several U.S. highways: US 6, US 50, US 93, US 95 and US 395. There are also 189 Nevada state routes. Many of Nevada's counties have a system of county routes as well, though many are not signed or paved in rural areas. Nevada is one of a few states in the U.S. that do not have a continuous interstate highway linking its two major population centers – the road connection between the Las Vegas and Reno areas is a combination of several different Interstate and U.S. highways. The Interstate 11 proposed routing may eventually remedy this.[120]

The state is one of just a few in the country to allow semi-trailer trucks with three trailers – what might be called a "road train" in Australia. But American versions are usually smaller, in part because they must ascend and descend some fairly steep mountain passes.

RTC Transit is the public transit system in the Las Vegas metropolitan area. The agency is the largest transit agency in the state and operates a network of bus service across the Las Vegas Valley, including the use of The Deuce, double-decker buses, on the Las Vegas Strip and several outlying routes. RTC RIDE operates a system of local transit bus service throughout the Reno-Sparks metropolitan area. Other transit systems in the state include Carson City's JAC. Most other counties in the state do not have public transportation at all.

Additionally, a 4-mile (6.4 km) monorail system provides public transportation in the Las Vegas area. The Las Vegas Monorail line services several casino properties and the Las Vegas Convention Center on the east side of the Las Vegas Strip, running near Paradise Road, with a possible future extension to Harry Reid International Airport. Several hotels also run their own monorail lines between each other, which are typically several blocks in length.

Harry Reid International Airport in Las Vegas is the busiest airport serving Nevada. The Reno-Tahoe International Airport (formerly known as the Reno Cannon International Airport) is the

other major airport in the state.

Energy

[edit]
See also: List of power stations in Nevada

External image
image of Nevada electricity grid

Nevada has had a thriving solar energy sector. An independent study in 2013 concluded that solar users created a $36 million net benefit. However, in December 2015, the Public Utility Commission let the state's only power company, NV Energy, charge higher rates and fees to solar panel users, leading to an immediate collapse of rooftop solar panel use.[121]

In December 1987, Congress amended the Nuclear Waste Policy Act to designate Yucca Mountain nuclear waste repository as the only site to be characterized as a permanent repository for all of the nation's highly radioactive waste.[122]

Affordable housing

[edit]

In 2018, the National Low Income Housing Coalition calculated the discrepancy between available affordable housing units and renters who earn below the poverty line. In Nevada, only 15 affordable rental homes are available per 100 extremely low income (ELI) households.[123] The shortage extended to a deficit in supply of 71,358 affordable rental homes. This was the largest discrepancy of any state. The most notable catalyst for this shortage was the Great Recession and housing crisis of 2007 and 2008. Since then, housing prices have increased while demand has increased, and supply has struggled to match the increase in demand. In addition, low-income service workers were slowly being pushed out by an influx of tech professionals. In Nevada there is essentially a standard of six-figure income to affordably rent a single-family home.[124] Considering the average salary in Nevada, $54,842 per year, this standard is on average, unaffordable.[125] The disproportionate cost of housing compared to average salary has led to 112,872 renters to be paying more than half of their yearly income towards housing.[126]

The definition of an affordable home is "one that a household can obtain for 30 percent or less of its annual income". So, there is clearly a long way to go in order to close the gap between housing prices and relative income in the state. Renters are looking for solutions to still be able to live in the state in a way that their income can support. As a result, single adults are being forced to split rent with other renters or move residences to farther outside metro areas. One solution being offered is to increase the supply of higher income positions within the state to make things more affordable. However, this would require Nevadans to retrain in new jobs or careers.

Education

[edit]

Education in Nevada is achieved through public and private elementary, middle, and high schools, as well as colleges and universities.

A May 2015 educational reform law expanded school choice options to 450,000 Nevada students who are at up to 185% of the federal poverty level. Education savings accounts (ESAs) are enabled by the new law to help pay the tuition for private schools. Alternatively, families "can use funds in these accounts to also pay for textbooks and tutoring".[127][128]

Approximately 86.9% of Nevada residents have attained at least a high school degree or equivalent, which is below the national average of 88.6%.[129]

Public school districts

[edit]

Public school districts in Nevada include:

- Carson City School District
- Churchill County School District
- Clark County School District, the fifth largest school district in the United States
- Douglas County School District
- Elko County School District
- Esmeralda County School District
- Eureka County School District
- Humboldt County School District
- Lander County School District
- Lincoln County School District
- Lyon County School District
- Mineral County School District
- Nye County School District
- Pershing County School District
- Storey County School District
- Washoe County School District
- White Pine County School District

Colleges and universities

[edit]

- Nevada System of Higher Education
  - University of Nevada, Las Vegas (UNLV)
  - University of Nevada, Reno (UNR)
  - Nevada State University (NSU)
  - Truckee Meadows Community College (TMCC)
  - Great Basin College
  - College of Southern Nevada (CSN)
  - Western Nevada College (WNC)
- Sierra Nevada College
- Touro University Nevada
- Roseman University of Health Sciences

Research institutes

[edit]

- Desert Research Institute

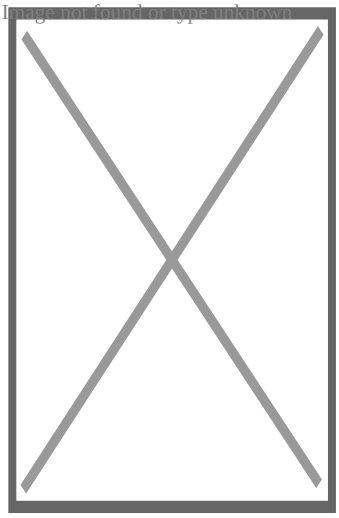
The Nevada Aerospace Hall of Fame provides educational resources and promotes the aerospace and aviation history of the state.[130]

Law and government

[edit]

Government

[edit]
Main article: Government of Nevada



The Nevada State Legislative Building in Carson City

Under the Constitution of the State of Nevada, the powers of the Nevada government are divided among three separate departments: the executive consisting of the governor of Nevada and their cabinet along with the other elected constitutional officers; the legislative consisting of the Nevada Legislature, which includes the Assembly and the Senate; and the judicial consisting of the Supreme Court of Nevada and lower courts.

The governor is the chief magistrate of Nevada,[131] the head of the executive department of the state's government,[131] and the commander-in-chief of the state's military forces.[132] The current governor is Joe Lombardo, a Republican. The executive branch also consists of an independently elected lieutenant governor, secretary of state, state treasurer, state controller, and attorney general who function as a check and balance on the power of the governor.[133]

The Nevada Legislature is a bicameral body divided into an Assembly and Senate. Members of the Assembly serve two years, and members of the Senate serve four years. Both houses of the Nevada Legislature enacted term limits starting in 2010, with senators and assemblymen/women who are limited to a maximum of twelve years in each body (by appointment or election which is a lifetime limit) – a provision of the constitution which was upheld by the Supreme Court of Nevada in a unanimous decision. Each session of the legislature meets for a constitutionally mandated 120 days in every odd-numbered year, or longer if the governor calls a special session.

On December 18, 2018, Nevada became the first in the United States with a female majority in its legislature. Women hold nine of the 21 seats in the Nevada Senate, and 23 of the 42 seats in the Nevada Assembly.[134]

The Supreme Court of Nevada is the state supreme court and the head of the Nevada Judiciary. Original jurisdiction is divided between the district courts (with general jurisdiction), and justice courts and municipal courts (both of limited jurisdiction). Appeals from District Courts are made directly to the Nevada Supreme Court, which under a deflective model of jurisdiction, has the discretion to send cases to the Court of Appeals for final resolution.[135]

Incorporated towns in Nevada, known as cities, are given the authority to legislate anything not prohibited by law. A recent movement has begun to permit home rule to incorporate Nevada cities to give them more flexibility and fewer restrictions from the Legislature. Town Boards for unincorporated towns are limited local governments created by either the local county commission, or by referendum, and form a purely advisory role and in no way diminish the responsibilities of the county commission that creates them.

State agencies

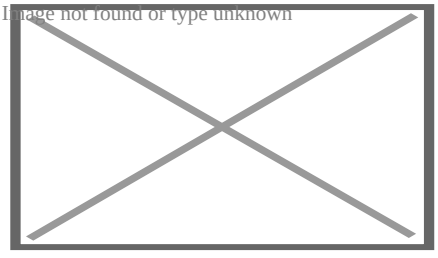
[edit]

- Attorney General
- Department of Business & Industry

- Department of Conservation & Natural Resources
- Consumer Health Assistance
- Controller's Office
- Department of Corrections
- Nevada Department of Cultural Affairs
- Nevada Commission on Economic Development
- Department of Education
- Nevada Secretary of State, Election Division
- Department of Employment, Training & Rehabilitation
- Gaming Control Board
- Governor's Office
- Nevada Film Office
- Department of Health and Human Services
- Department of Information Technology
- Department of Justice
- Lieutenant Governor
- Nevada Military Department
- Division of Minerals, Commission on Mineral Resources
- Department of Motor Vehicles
- Department of Personnel
- Advisory Council for Prosecuting Attorneys
- Public Employees Benefit Program
- Public Employees Retirement System
- Department of Public Safety
- Nevada Public Utilities Commission
- Department of Secretary of State
- Department of Taxation
- Commission on Tourism
- Department of Transportation
- Nevada State Treasurer
- Universities and Community Colleges of Nevada
- Nevada Office of Veterans' Services
- Western Interstate Commission for Higher Education
- Nevada Department of Wildlife
- Board of Museums and History

Law

[edit]



The courthouse of the Supreme Court of Nevada

In 1900, Nevada's population was the smallest of all states and was shrinking, as the difficulties of living in a "barren desert" began to outweigh the lure of silver for many early settlers. Historian Lawrence Friedman has explained what happened next:

> Nevada, in a burst of ingenuity, built an economy by exploiting its sovereignty. Its strategy was to legalize all sorts of things that were illegal in California ... after the easy divorce came easy marriage and casino gaming. Even prostitution is legal in Nevada, in any county that decides to allow it. Quite a few of them do.[136]

With the advent of air conditioning for summertime use and Southern Nevada's mild winters, the fortunes of the state began to turn around, as it did for Arizona, making these two states the fastest growing in the Union.

Prostitution

[edit]
See also: Prostitution in Nevada

Nevada is the only state where prostitution is legal – in a licensed brothel in a county which has specifically voted to permit it. It is illegal in larger jurisdictions such as Clark County (which contains Las Vegas), Washoe County (which contains Reno), and the independent city of Carson City.

Divorce

[edit]

Nevada's early reputation as a "divorce haven" arose from the fact that before the no-fault divorce revolution in the 1970s, divorces were difficult to obtain in the United States. Already having legalized gambling and prostitution, Nevada continued the trend of boosting its profile by adopting one of the most liberal divorce statutes in the nation. This resulted in *Williams v. North Carolina (1942)*, 317 U.S. 287 (1942), in which the U.S. Supreme Court ruled North Carolina had to give "full faith and credit" to a Nevada divorce. The Court modified its decision in *Williams v. North Carolina* (1945), 325 U.S. 226 (1945), by holding a state need not recognize a Nevada divorce unless one of the parties was domiciled there at the time the divorce was granted and the forum state was entitled to make its own determination.

As of 2009, Nevada's divorce rate was above the national average.[137]

Taxes

[edit]

Nevada's tax laws are intended to draw new residents and businesses to the state. Nevada has no personal income tax or corporate income tax.[138] Since Nevada does not collect income data it cannot share such information with the federal government, the IRS.[139]

The state sales tax (similar to VAT or GST) in Nevada is variable depending upon the county. The statewide tax rate is 6.85%, with five counties (Elko, Esmeralda, Eureka, Humboldt, and Mineral) charging this amount. Counties may impose additional rates via voter approval or through approval of the state legislature; therefore, the applicable sales tax varies by county from 6.85% to 8.375% (Clark County). Clark County, which includes Las Vegas, imposes four separate county option taxes in addition to the statewide rate: 0.25% for flood control, 0.50% for mass transit, 0.25% for infrastructure, and 0.25% for more law enforcement. In Washoe County, which includes Reno, the sales tax rate is 7.725%, due to county option rates for flood control, the ReTRAC train trench project, and mass transit, and an additional county rate approved under the Local Government Tax Act of 1991.[140] The minimum Nevada sales tax rate changed on July 1, 2009.[141]

The lodging tax rate in unincorporated Clark County, which includes the Las Vegas Strip, is 12%. Within the boundaries of the cities of Las Vegas and Henderson, the lodging tax rate is 13%.

Corporations such as Apple Inc. allegedly have set up investment companies and funds in Nevada to avoid paying taxes.[142]

LGBT rights

[edit]
Main articles: Same-sex marriage in Nevada and LGBT rights in Nevada

In 2009, the Nevada Legislature passed a bill creating a domestic partnership registry which enables same-sex couples to enjoy the same rights as married couples. Due to the landmark decision in the case of *Obergefell v. Hodges*, 576 U.S. 644 (2015), same-sex marriage was outright legalized in the state.

Incorporation

[edit]

Nevada provides a friendly environment for the formation of corporations, and many (especially California) businesses have incorporated in Nevada to take advantage of the benefits of the Nevada statute. Nevada corporations offer great flexibility to the board of directors and simplify or avoid many of the rules that are cumbersome to business managers in some other states. In addition, Nevada has no franchise tax, although it does require businesses to have a license for which the business has to pay the state.

Financial institutions

[edit]

Similarly, many U.S. states have usury laws limiting the amount of interest a lender can charge, but federal law allows corporations to "import" these laws from their home state. Nevada has no cap on interest rates that may be agreed to in contracts.[143]

Alcohol and other drugs

[edit]
See also: Alcohol laws of Nevada and Cannabis in Nevada

Nevada has very liberal alcohol laws. Bars are permitted to remain open 24 hours, with no "last call". Liquor stores, convenience stores and supermarkets may also sell alcohol 24 hours per day and may sell beer, wine and spirits.

In 2016, Nevada voters approved Question 2, which legalized the possession, transportation and cultivation of personal use amounts of marijuana for adults age 21 years and older, and authorized the creation of a regulated market for the sale of marijuana to adults age 21 years and older through state-licensed retail outlets.[144] Nevada voters had previously approved medical marijuana in 2000, but rejected marijuana legalization in a similar referendum in 2006. Marijuana in all forms remains illegal under federal law.

Aside from cannabis legalization, non-alcohol drug laws are a notable exception to Nevada's otherwise libertarian principles. It is notable for having the harshest penalties for drug offenders in the country. Nevada remains the only state to still use mandatory minimum sentencing guidelines for possession of drugs.[145]

The Substance Abuse and Mental Health Services Administration (SAMHSA) reported, in their Behavioral Health Barometer for Nevada, published in 2014, changes to substance abuse patterns and addiction across the southwestern state.[146] Between 2012 and 2013, adolescents in Nevada abused illicit substances at a slightly higher percentage than nationally. 10.2 percent of Nevada's adolescents abused illicit drugs compared to 9.2 percent across the United States. Between 2009 and 2013, 11.7 percent of all adolescents in the state reported abusing illicit, intoxicating substances in the month prior to the survey; this represents 25,000

adolescents.

Smoking

[edit]

Nevada voters enacted a smoking ban ("The Nevada Clean Indoor Air Act") in November 2006 which became effective on December 8, 2006. It outlaws smoking in most workplaces and public places. Smoking is permitted in bars, but only if the bar serves no food, or the bar is inside a larger casino. Smoking is also permitted in casinos, certain hotel rooms, tobacco shops, and brothels.[147] However, some businesses do not obey this law and the government tends not to enforce it.[148] In 2011, smoking restrictions in Nevada were relaxed for certain places which allow only people 21 or older inside.[149]

Crime

[edit]
Main article: Crime in Nevada

In 2006, the crime rate in Nevada was about 24% higher than the national average rate, though crime has since decreased. Property crimes accounted for about 85% of the total crime rate in Nevada, which was 21% higher than the national rate. The remaining 20.3% were violent crimes.[150] A complete listing of crime data in the state for 2013 can be found here:[151]

Politics

[edit]
See also: Political party strength in Nevada

Party registration as of February 2025[152]

Party	Total voters	Percentage
Democratic	616,656	29.42%
Republican	616,882	29.43%
Independent American	94,604	4.51%
Libertarian	16,202	0.77%
Other parties	48,727	2.33%
Nonpartisan	703,085	33.54%
Total	**2,096,156**	**100.00%**

State politics

[edit]

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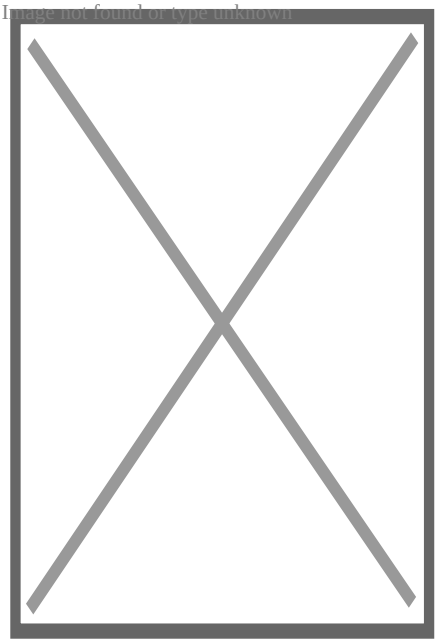

Party Registration by County in Nevada (February 2025):

- Republican ? 30%
- Republican ? 40%
- Republican ? 50%
- Republican ? 60%
- Unaffiliated ? 30%

Due to heavy growth in the southern portion of the state, there is a noticeable divide between the politics of northern and southern Nevada. Historically, northern Nevada has been very Republican. The more rural counties of the north are among the most conservative regions of the state. Carson City, the state's capital, is a Republican-leaning swing city/county. Washoe County, home to Reno, has historically been strongly Republican, but now has become a fairly balanced swing county, like the state as a whole. Clark County, home to Las Vegas, has been a stronghold for the Democratic Party since it was founded in 1909, having voted Republican only six times and once for a third-party candidate, although in recent times becoming more competitive, most notably in the 2024 Presidential Election where the Democratic Party's margin of victory was only 2.63 percentage points to Republicans.[153] Clark and Washoe counties have long dominated the state's politics. Between them, they cast 87% of Nevada's vote, and elect a substantial majority of the state legislature. The last Republican to carry Clark County was George H. W. Bush in 1988, and the last Republican to carry Washoe County was George W. Bush in 2004. The great majority of the state's elected officials are from either Las Vegas or Reno.[154] Donald Trump was able to carry Nevada with a statewide majority in 2024, despite losing both Clark and Washoe.

In 2014, Republican Adam Laxalt, despite losing both Clark and Washoe counties, was elected Attorney General. However, he had lost Clark County only by 5.6% and Washoe County by 1.4%, attributable to lower turnout in these counties.[155]

National politics

[edit]
See also: United States presidential elections in Nevada

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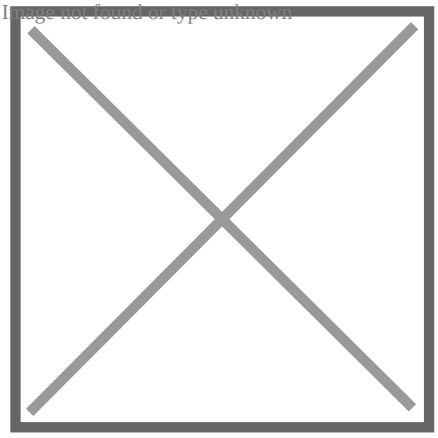


2024 U.S. presidential election results by county in Nevada

Democratic
Republican

Nevada has been won by the winner of nearly every presidential election since its first in 1864, only being carried by the defeated candidate eight times since statehood, most of which were before 1900. Since 1912 Nevada has been carried by the presidential victor the most out of any state (27 of 29 elections), the only exceptions being 1976 when it voted for Gerald Ford over Jimmy Carter and 2016 when the state was carried by Hillary Clinton over Donald Trump. This gives the state status as a political bellwether. It was one of only three states won by John F. Kennedy in the American West in the election of 1960, albeit narrowly.[156] The state's U.S. Senators are Democrats Catherine Cortez Masto and Jacky Rosen. The Governorship is held by Joe Lombardo, a Republican.

Elections

[edit]
Main article: Elections in Nevada

Nevada is the only U.S. state to have a none of the above option available on its ballots. Officially called None of These Candidates, the option was first added to the ballot in 1975 and is used in all statewide elections, including president, US Senate and all state constitutional positions. In the event "None of These Candidates" receives a plurality of votes in the election, the candidate with the next-highest total is elected.[157]

In a 2020 study, Nevada was ranked as the 23rd on the "Cost of Voting Index", which is a measure of "the ease of voting across the United States."[158]

Culture

[edit]

Entertainment and tourism

[edit]

Resort areas like Las Vegas, Reno, Lake Tahoe, and Laughlin attract visitors from around the nation and world. In fiscal year 2022 Nevada casinos (not counting those with annual revenue under a million dollars) brought in US$10.7 billion in gaming revenue and another US$15.7 billion in non-gaming revenue.[159]

Nevada has by far the most hotel rooms per capita in the United States. According to the American Hotel and Lodging Association, there were 187,301 rooms in 584 hotels (of 15 or more rooms). The state is ranked just below California, Texas, Florida, and New York in the total number of rooms, but those states have much larger populations. Nevada has one hotel room for every 14 residents, far above the national average of one hotel room per 67 residents.[160]

Prostitution is legal in parts of Nevada in licensed brothels, but only counties with populations under 400,000 have the option to legalize it. Although prostitution is not a major part of the Nevada economy, employing roughly 300 women as independent contractors, it is a very visible endeavor. Of the 14 counties permitted to legalize prostitution under state law, eight have chosen to legalize brothels. State law prohibits prostitution in Clark County (which contains Las Vegas), and Washoe County (which contains Reno). However, prostitution is legal in Storey County, which is part of the Reno–Sparks metropolitan area.

Sports

[edit]
See also: Las Vegas § Sports; Sports in the Las Vegas metropolitan area; Reno, Nevada § Sports; and Henderson, Nevada § Sports

The Las Vegas Valley is home to the Vegas Golden Knights of the National Hockey League who began to play in the 2017–18 NHL season at T-Mobile Arena on the Las Vegas Strip in Paradise, the Las Vegas Raiders of the National Football League who began play at Allegiant Stadium in Paradise in 2020 after moving from Oakland, California, and the Las Vegas Aces of the WNBA who began playing in 2018 at Mandalay Bay Events Center after relocating from San Antonio. The Oakland Athletics of Major League Baseball plan to move to Las Vegas by 2027.[161][162]

Nevada takes pride in college sports, most notably its college football. College teams in the state include the Nevada Wolf Pack (representing the University of Nevada, Reno) and the

UNLV Rebels (representing the University of Nevada, Las Vegas), both in the Mountain West Conference (MW).

UNLV is most remembered for its men's basketball program, which experienced its height of supremacy in the late 1980s and early 1990s. Coached by Jerry Tarkanian, the Runnin' Rebels became one of the most elite programs in the country. In 1990, UNLV won the Men's Division I Championship by defeating Duke 103–73, which set tournament records for most points scored by a team and largest margin of victory in the national title game.

In 1991, UNLV finished the regular season undefeated, a feat that would not be matched in Division I men's basketball for more than 20 years. Forward Larry Johnson won several awards, including the Naismith Award. UNLV reached the Final Four yet again, but lost their national semifinal against Duke 79–77. The Runnin' Rebels were the Associated Press pre-season No. 1 back to back (1989–90, 1990–91). North Carolina is the only other team to accomplish that (2007–08, 2008–09).

The state's involvement in major-college sports is not limited to its local schools. In the 21st century, the Las Vegas area has become a significant regional center for college basketball conference tournaments. The MW, West Coast Conference, and Western Athletic Conference all hold their men's and women's tournaments in the area, and the Pac-12 holds its men's tournament there as well. The Big Sky Conference, after decades of holding its men's and women's conference tournaments at campus sites, began holding both tournaments in Reno in 2016.

Las Vegas has hosted several professional boxing matches, most recently at the MGM Grand Garden Arena with bouts such as Mike Tyson vs. Evander Holyfield, Evander Holyfield vs. Mike Tyson II, Oscar De La Hoya vs. Floyd Mayweather Jr. and Oscar De La Hoya vs. Manny Pacquiao and at the newer T-Mobile Arena with Canelo Álvarez vs. Amir Khan.

Along with significant rises in popularity in mixed martial arts (MMA), a number of fight leagues such as the UFC have taken interest in Las Vegas as a primary event location due to the number of suitable host venues. The Mandalay Bay Events Center and MGM Grand Garden Arena are among some of the more popular venues for fighting events such as MMA and have hosted several UFC and other MMA title fights. The city has held the most UFC events with 86 events.

The state is also home to the Las Vegas Motor Speedway, which hosts NASCAR's Pennzoil 400 and South Point 400. Two venues in the immediate Las Vegas area host major annual events in rodeo. The Thomas & Mack Center, built for UNLV men's basketball, hosts the National Finals Rodeo. The PBR World Finals, operated by the bull riding-only Professional Bull Riders, was also held at the Thomas & Mack Center before moving to T-Mobile Arena in 2016.

The state is also home to famous tennis player, Andre Agassi, and current baseball superstar Bryce Harper.

List of teams

[edit]

Major professional teams

[edit]

Team	Sport	League	Venue (capacity)	Established	Titles
Las Vegas Raiders	Football	NFL	Allegiant Stadium (65,000)	2020	3[f]
Vegas Golden Knights	Ice hockey	NHL	T-Mobile Arena (17,500)	2017	1
Las Vegas Aces	Women's basketball	WNBA	Michelob Ultra Arena (12,000)	2018	2

Minor professional teams

[edit]

Team	Sport	League	Venue (capacity)	Established	Titles
Las Vegas Aviators	Baseball	MiLB (AAA–PCL)	Las Vegas Ballpark (10,000)	1983	2
Reno Aces			Greater Nevada Field (9,013)	2009	2
Vegas Royals	Basketball	ABA		0	
Henderson Silver Knights	Ice hockey	AHL	Dollar Loan Center (5,567)	2020	0
Tahoe Knight Monsters		ECHL	Tahoe Blue Event Center (5,000)	2024	0
Las Vegas Lights FC	Soccer	USLC	Cashman Field (9,334)	2018	0
Nevada Storm	Women's football	WFA	Damonte Ranch High School (N/A) Fernley High School (N/A) Galena High School (N/A)	2008	0
Sin City Trojans			Desert Pines High School (N/A)		0

Vegas Knight Hawks	Indoor football	IFL	Dollar Loan Center (6,019)	2021	0
Las Vegas Desert Dogs	Box lacrosse	NLL	Michelob Ultra Arena (12,000)		0

Amateur teams

[edit]

Team	Sport	League	Venue (capacity)	Established	Titles
Reno Ice Raiders	Ice hockey	MWHL	Reno Ice	2015	0
Vegas Jesters				2012	0
Las Vegas Thunderbirds		USPHL	City National Arena (600)	2019	0
Las Vegas Legends	Soccer	NPSL	Peter Johann Memorial Field (2,500)	2021	0
Nevada Coyotes FC		UPSL	Rio Vista Sports Complex (N/A)	2016	0

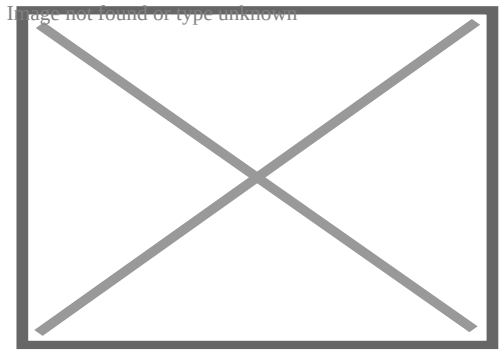
College teams

[edit]

School	Team	League	Division	Conference
University of Nevada, Las Vegas (UNLV)	**UNLV Rebels**	NCAA	NCAA Division I	Mountain West
University of Nevada, Reno (UNR)	**Nevada Wolf Pack**			
College of Southern Nevada (CSN)	**CSN Coyotes**	NJCAA	NJCAA Division I	Scenic West
Western Nevada College (WNC)	**WNC Wildcats**			

Military

[edit]



A map that details the federal land in southern Nevada, showing Nellis Air Force Base Complex and Nevada Test Site

Several United States Navy ships have been named USS *Nevada* in honor of the state. They include:

- *Nevada* (1865 screw frigate)
- USS *Nevada* (BM-8)
- USS *Nevada* (BB-36)
- USS *Nevada* (SSBN-733)

Area 51 is near Groom Lake, a dry salt lake bed. The much smaller Creech Air Force Base is in Indian Springs, Nevada; Hawthorne Army Depot in Hawthorne; the Tonopah Test Range near Tonopah; and Nellis AFB in the northeast part of the Las Vegas Valley. Naval Air Station Fallon in Fallon; NSAWC, (pronounced "EN-SOCK") in western Nevada. NSAWC consolidated three Command Centers into a single Command Structure under a flag officer on July 11, 1996. The Naval Strike Warfare Center based at NAS Fallon since 1984, was joined with the Navy Fighter Weapons School (TOPGUN) and the Carrier Airborne Early Warning Weapons School, which both moved from NAS Miramar as a result of a Base Realignment and Closure decision in 1993 which transferred that installation back to the Marine Corps as MCAS Miramar. The Seahawk Weapon School was added in 1998 to provide tactical training for Navy helicopters.

These bases host a number of activities including the Joint Unmanned Aerial Systems Center of Excellence, the Naval Strike and Air Warfare Center, Nevada Test and Training Range, Red Flag, the U.S. Air Force Thunderbirds, the United States Air Force Warfare Center, the United States Air Force Weapons School, and the United States Navy Fighter Weapons School.

See also

[edit]

- flag Nevada portal
- flag United States portal

- Index of Nevada-related articles
- Outline of Nevada – organized list of topics about Nevada
- List of people from Nevada

Notes

[edit]

1. ^ ***a b*** Elevation to North American Vertical Datum of 1988

2. ^ The distinction of highest point in Nevada goes to the summit of Boundary Peak, so named because it is very near the Nevada–California border, at the northern terminus of the White Mountains. However, Boundary Peak can be considered a subsidiary summit of Montgomery Peak, whose summit is in California, since the topographic prominence of Boundary Peak is only 253 feet (77 m), which falls under the often used 300-foot (91 m) cutoff for an independent peak. Also, Boundary Peak is less than 1 mile (1.6 km) away from its higher neighbor. Hence Boundary Peak can be described as not being wholly within Nevada. By contrast, the prominence of Wheeler Peak, 13,063 feet (3,982 m), is quite large and in fact it is the twelfth largest in the contiguous United States. Wheeler Peak is the highest point in a radius of more than 200 square miles (520 km^2) and is entirely within the state of Nevada.
3. ^ Also sometimes placed in the Mountain West and Southwestern United States
4. ^ The National Archives press release states that the cost was $4,313.27, but the amount $4,303.27 is actually written on the document.
5. ^ Persons of Hispanic or Latino origin are not distinguished between total and partial ancestry.
6. ^ Two titles were won when the team was based in Oakland, California and one was won when they were based in Los Angeles, California.

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- US Census Bureau
- 1875 County Map at Texas Tech Southwest Collection
- County Maps of Nevada Full color maps. List of cities, towns and county seats
- Nevada State Facts from USDA
- Forgotten Nevada – Ghost Towns and Mining Camps of Nevada
- Nevada's Historical Markers
- Nevada State Seal
- Image not found or type unknown Geographic data related to Nevada at OpenStreetMap
- Online Nevada Encyclopedia, Nevada Humanities
- Nevada Corporation Headquarters

Preceded by	List of U.S. states by date of statehood	Succeeded by
West Virginia	Admitted on October 31, 1864 (36th)	Nebraska

Topics related to Nevada
The Silver State

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State of Nevada

Carson City (capital)

Topics

- Index
- Geography
- Government
  - Delegations
- History
  - Nevada Territory
  - World War II
- People
- Symbols
- Tourist attractions
- Transportation
- Fauna

Society

- Abortion
- Culture
- Crime
- Demographics
  - Hispanics and Latinos
  - Native Americans
- Economy
- Education
- Elections
- Gun laws
- LGBT rights
- Politics

Regions

- Black Rock Desert
- Eagle Valley
- Great Basin
- Lake Mead
- Lake Tahoe
- Las Vegas Valley
- Mojave Desert
- Pahranagat Valley
- Sierra Nevada
- Trout Creek Mountains
- Truckee Meadows

Metro areas

- Las Vegas
- Reno

Counties

- Churchill
- Clark
- Douglas
- Elko
- Esmeralda
- Eureka
- Humboldt
- Lander
- Lincoln
- Lyon
- Mineral
- Nye
- Pershing
- Storey
- Washoe
- White Pine

Cities and communities	○ Alamo ○ Amargosa Valley ○ Austin ○ Baker ○ Battle Mountain ○ Beatty ○ Boulder City ○ Caliente ○ Carlin ○ Carson City ○ Elko ○ Ely ○ Enterprise ○ Eureka ○ Fallon ○ Fernley ○ Gardnerville Ranchos ○ Gerlach ○ Goldfield ○ Hawthorne ○ Henderson ○ Incline Village ○ Las Vegas ○ Laughlin ○ Lovelock ○ Mesquite ○ Minden ○ North Las Vegas ○ Panaca ○ Pahrump ○ Paradise ○ Pioche ○ Primm ○ Rachel ○ Reno ○ Spanish Springs ○ Sparks ○ Spring Creek ○ Spring Valley ○ Stateline ○ Summerlin South ○ Sun Valley ○ Sunrise Manor ○ Tonopah ○ Virginia City ○ West Wendover ○ Winnemucca

Former counties

- Bullfrog
- Ormsby
- Roop

flagNevada portal

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Protected areas of Nevada

National Parks and Monuments

- Avi Kwa Ame NM (BLM)
- Basin and Range NM (BLM)
- Death Valley NP
- Gold Butte NM (BLM)
- Great Basin NP
- Tule Springs Fossil Beds NM

National Recreation Areas

- Lake Mead
- Spring Mountains (USFS)

National Forests

- Humboldt–Toiyabe
- Inyo
- Lake Tahoe Basin

National Conservation Areas

- Black Rock Desert–High Rock Canyon Emigrant Trails
- Red Rock Canyon
- Sloan Canyon

- Alta Toquima
- Arc Dome
- Arrow Canyon
- Bald Mountain
- Becky Peak
- Big Rocks
- Black Canyon
- Black Rock Desert
- Boundary Peak
- Bridge Canyon
- Bristlecone
- Calico Mountains
- Clover Mountains
- Currant Mountain
- Death Valley
- Delamar Mountains
- East Fork High Rock Canyon
- East Humboldt
- Eldorado
- Far South Egans
- Fortification Range
- Goshute Canyon
- Government Peak
- Grant Range
- High Rock Canyon
- High Rock Lake

Historic Parks	○ Elgin Schoolhouse ○ Fort Churchill ○ Mormon Station ○ Old Las Vegas Mormon Fort ○ Ward Charcoal Ovens
Recreation Areas	○ Big Bend of the Colorado ○ Lahontan ○ Rye Patch ○ South Fork ○ Walker River ○ Wild Horse
State	○ Beaver Dam ○ Berlin–Ichthyosaur ○ Cathedral Gorge ○ Cave Lake ○ Dayton ○ Echo Canyon ○ Ice Age Fossils ○ Kershaw–Ryan ○ Lake Tahoe–Nevada ○ Spring Mountain Ranch ○ Spring Valley ○ Valley of Fire ○ Van Sickle ○ Washoe Lake
Other	
Previous	○ Belmont Courthouse ○ Floyd Lamb ○ Walker Lake

○ flag **Nevada portal**

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Western United States

Regions	○ Rocky Mountains ○ Great Basin ○ West Coast ○ Pacific Northwest ○ Mountain States
States	○ Alaska ○ Arizona ○ California ○ Colorado ○ Hawaii ○ Idaho ○ Montana ○ Nevada ○ New Mexico ○ Oregon ○ Utah ○ Washington ○ Wyoming
Territories	○ American Samoa ○ Guam ○ Northern Mariana Islands

Major metropolitan areas	○ Los Angeles
	○ Phoenix
	○ San Francisco Bay Area
	  ○ San Jose–Oakland
	○ San Bernardino-Riverside
	○ Seattle
	○ San Diego
	○ Denver
	○ Portland
	○ Las Vegas
	○ Sacramento
	○ Salt Lake City
	○ Honolulu
	  ○ OÃƒÆ'Ã†â€™Ãƒâ€¦Ã‚Â ÃƒÆ'Ã¢â‚¬Å¡Ãƒâ€šÃ‚Â»ahu
	○ Albuquerque
	  ○ Santa Fe
	○ Anchorage

Major cities (over 300k)	○ Albuquerque ○ Anaheim ○ Aurora ○ Bakersfield ○ Colorado Springs ○ Denver ○ Fresno ○ Henderson ○ Honolulu ○ Las Vegas ○ Long Beach ○ Los Angeles ○ Mesa ○ Oakland ○ Phoenix ○ Portland ○ Riverside ○ Sacramento ○ San Diego ○ San Francisco ○ San Jose ○ Santa Ana ○ Seattle ○ Stockton ○ Tucson
State capitals	○ Boise ○ Carson City ○ Cheyenne ○ Denver ○ Helena ○ Honolulu ○ Juneau ○ Olympia ○ Phoenix ○ Sacramento ○ Salem ○ Salt Lake City ○ Santa Fe

Territorial capitals

- Hagåtña
- Pago Pago
- Saipan

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New Spain (1521–1821)

- Spanish conquest of the Aztec Empire ?
- Spanish conquest of Guatemala ?
- Spanish conquest of Yucatán ?
- Anglo-Spanish War (1585–1604) ?
- Anglo-Spanish War (1625–1630) ?
- Dutch Revolt ?
- Anglo-Spanish War (1654–1660) ?
- Piracy in the Caribbean ?
- Queen Anne's War ?
- War of Jenkins' Ear ?
- Seven Years' War ?
- Spain and the American Revolutionary War

Conflicts

Conflicts with indigenous peoples during colonial rule

- Mixtón War ?
- Yaqui Wars ?
- Chichimeca War ?
- Philippine revolts against Spain ?
- Acaxee Rebellion ?
- Spanish–Moro conflict ?
- Acoma Massacre ?
- Tepehuán Revolt ?
- Tzeltal Rebellion ?
- Pueblo Revolt ?
- Pima Revolt ?
- Spanish American wars of independence

Central government and administration	**Habsburg Spain**	○ Charles I ○ Joanna of Castile ○ Philip II ○ Philp III ○ Philip IV ○ Charles II
	Bourbon Spain	○ Philip V (also reigned after Louis I) ○ Louis I ○ Ferdinand VI ○ Charles III ○ Charles IV ○ Ferdinand VII of Spain (also reigned after Joseph I)
	Viceroys of New Spain	○ List of viceroys of New Spain
	Audiencias	○ Guadalajara ○ Captaincy General of Guatemala ○ Manila ○ Mexico ○ Santo Domingo
	Captancies General	○ Cuba ○ Guatemala ○ Philippines ○ Puerto Rico ○ Santo Domingo ○ Yucatán ○ Provincias Internas
	Intendancy	○ Havana ○ New Orleans ○ State of Mexico ○ Chiapas ○ Comayagua ○ Nicaragua ○ Camagüey ○ Santiago de Cuba ○ Guanajuato ○ Valladolid ○ Guadalajara ○ Zacatecas ○ San Luis Potosí

Cities	○ Mexico City ○ Veracruz ○ Xalapa ○ Puebla ○ Toluca ○ Cuernavaca ○ Oaxaca ○ Morelia ○ Acapulco ○ Campeche ○ Mérida ○ Guadalajara ○ Durango ○ Monterrey ○ León ○ Guanajuato ○ Zacatecas ○ Pachuca ○ Querétaro ○ Saltillo ○ San Luis Potosí ○ Los Ángeles ○ Yerba Buena (San Francisco) ○ San José ○ San Diego ○ Santa Fe ○ Albuquerque ○ El Paso ○ Los Adaes ○ San Antonio ○ Tucson ○ Pensacola ○ St. Augustine ○ Havana ○ Santo Domingo ○ San Juan ○ Antigua Guatemala ○ Cebu ○ Manila

Notable cities, provinces, and territories	○ Louisiana
	○ La Florida (Florida)
	○ Las Californias
	  ○ Alta California (California)
	  ○ Baja California
	○ Santa Fe de Nuevo México (New Mexico)

Explorers, adventurers and conquistadors

Pre-New Spain explorers

- Christopher Columbus
- Ferdinand Magellan
- Juan Sebastián Elcano
- Vasco Núñez de Balboa
- Diego Velázquez de Cuéllar

Explorers and conquistadors

- Hernán Cortés
- Juan Ponce de León
- Nuño de Guzmán
- Bernal Díaz del Castillo
- Pedro de Alvarado
- Pánfilo de Narváez
- Hernando de Soto
- Francisco Vázquez de Coronado
- Juan Rodríguez Cabrillo
- Miguel López de Legazpi
- Ángel de Villafañe
- Álvar Núñez Cabeza de Vaca
- Pedro Menéndez de Avilés
- Luis de Carvajal y de la Cueva
- Juan de Oñate
- Juan José Pérez Hernández
- Gaspar de Portolá
- Manuel Quimper
- Cristóbal de Oñate
- Andrés de Urdaneta
- Ruy López de Villalobos
- Diego Velázquez de Cuéllar
- Francisco Hernández de Córdoba (Yucatán conquistador)
- Francisco Hernández de Córdoba (founder of Nicaragua)
- Gil González Dávila
- Francisco de Ulloa
- Juan José Pérez Hernández
- Dionisio Alcalá Galiano
- Bruno de Heceta
- Juan Francisco de la Bodega y Quadra
- Alonso de León
- Ignacio de Arteaga y Bazán
- José de Bustamante y Guerra
- José María Narváez
- Pedro Sarmiento de Gamboa
- Antonio Gil Y'Barbo
- Alexander von Humboldt
- Thomas Gage

Catholic Church in New Spain

Spanish missions in the Americas

- Spanish missions in Arizona
- Spanish missions in Baja California
- Spanish missions in California
- Spanish missions in the Carolinas
- Spanish missions in Florida
- Spanish missions in Georgia
- Spanish missions in Louisiana
- Spanish missions in Mexico
- Spanish missions in New Mexico
- Spanish missions in the Sonoran Desert
- Spanish missions in Texas
- Spanish missions in Virginia
- Spanish missions in Trinidad

Friars, fathers, priests, and bishops

- Pedro de Gante
- Gerónimo de Aguilar
- Toribio de Benavente Motolinia
- Bernardino de Sahagún
- Juan de Zumárraga
- Alonso de Montúfar
- Vasco de Quiroga
- Bartolomé de las Casas
- Alonso de Molina
- Diego Durán
- Diego de Landa
- Gerónimo de Mendieta
- Juan de Torquemada
- Juan de Palafox y Mendoza
- Carlos de Sigüenza y Góngora
- Eusebio Kino
- Francisco Javier Clavijero
- Junípero Serra
- Francisco Palóu
- Fermín de Lasuén
- Esteban Tápis
- José Francisco de Paula Señan
- Mariano Payeras
- Sebastián Montero
- Marcos de Niza
- Francisco de Ayeta
- Antonio Margil
- Francisco Marroquín
- Manuel Abad y Queipo
- Miguel Hidalgo y Costilla
- José María Morelos

Mesoamerican

- Aztecs
- Maya
- Huastec
- Mixtec
- P'urhépecha
- Totonac
- Pipil
- Kowoj
- KÃƒÆ'Ã†â€™Ãƒâ€¦Ã‚ ÃƒÆ'Ã¢â‚¬Å¡Ãƒâ€šÃ‚¼
- Kaqchikel
- Zapotec
- Poqomam
- Mam

Caribbean

- Arawak
- Ciboney
- Guanahatabey

California

- Mission Indians
- Cahuilla
- Chumash
- Cupeño
- Juaneño
- Kumeyaay
- Luiseño
- Miwok
- Mohave
- Ohlone
- Serrano
- Tongva

Oasisamerica (Southwest US)

- Akimel O'odham
- Apache
- Hopi
- Hualapai
- Navajo
- Pueblo peoples
- Quechan
- Solano
- Tohono O'odham
- Zuni

Indigenous peoples

- Acaxee

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Political divisions of the United States

List of states and territories

States

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington

Federal district Washington, D.C.

Territories	○ American Samoa ○ Guam ○ Northern Mariana Islands ○ Puerto Rico ○ U.S. Virgin Islands
Outlying islands	○ Baker Island ○ Howland Island ○ Jarvis Island ○ Johnston Atoll ○ Kingman Reef ○ Midway Atoll ○ Navassa Island ○ Palmyra Atoll ○ Wake Island
Indian reservations	○ List of Indian reservations
International concessions	○ Guantanamo Bay ○ Pituffik

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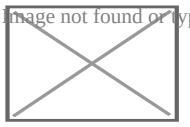
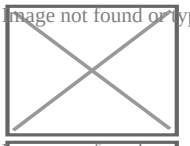
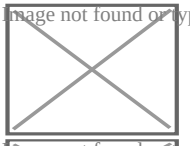
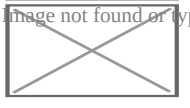
Sports teams based in Nevada

Australian rules football	USAFL	Las Vegas Gamblers
Baseball	PCL	Las Vegas Aviators Reno Aces









Basketball	WNBA Las Vegas Aces ABA Las Vegas Royals Nevada Pharaohs
Esports	CDL Vegas Legion OWL Vegas Eternal
Football	NFL Las Vegas Raiders WFA Nevada Storm Sin City Trojans
Ice hockey	NHL Vegas Golden Knights AHL Henderson Silver Knights ECHL Tahoe Knight Monsters MWHL Reno Ice Raiders Vegas Jesters USPHL Las Vegas Thunderbirds
Indoor football	IFL Vegas Knight Hawks
Box lacrosse	NLL Las Vegas Desert Dogs
Roller derby	WFTDA Fabulous Sin City Roller Derby

Rugby football	NARL	Las Vegas Blackjacks
Soccer	USLC	Las Vegas Lights FC
	NPSL	Las Vegas Legends
	UPSL	Nevada Coyotes FC
Tennis	WTT	Vegas Rollers
Volleyball	PVF	Vegas Thrill

College athletics	**NCAA Div. I**	○ Nevada Wolf Pack ○ UNLV Rebels
	NJCAA Div. I	○ CSN Coyotes ○ WNC Wildcats

See also: Sports in the Las Vegas metropolitan area

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International	○ ISNI ○ VIAF ○ FAST ○ WorldCat

National	○ Germany ○ United States ○ Australia ○ Czech Republic ○ Spain ○ Latvia ○ Chile ○ Israel ○ Catalonia
Geographic	○ MusicBrainz area
Academics	○ CiNii
Other	○ IdRef ○ NARA

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About Rock N Block - Turf N Hardscapes

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Things To Do in Clark County

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Clark County Historical Museum

4.6 (147)

Driving Directions in Clark County

Driving Directions From Field 2 to

Driving Directions From Rock N Block - Turf N Hardscapes to

Driving Directions From Universal Turf Equipment to

Driving Directions From Rhino's Turf Equipment – A part of United Rentals to

Driving Directions From Festival Turf Las Vegas to

Driving Directions From Everything Turf Pros to

Driving Directions From Turf Trimmers Landscaping, Inc. to

Driving Directions From VS Turf Supply to

Driving Directions From Kellogg Zaher Soccer Complex to

Driving Directions From TURFIT LAS VEGAS to

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Reviews for Rock N Block - Turf N Hardscapes

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Terry lewis

(5)

Workers were great, no problem they did what was required, but the representative of your company mislead me on what was to be done, I showed pictures from a competitor landscaper, representative stated he could bet there , , . price, but since it wasn't in contract, I was left with uncomplicated backyard , working with owner at present, so he's been outstanding working on this situation, as amount of rock was way off and the owner did increase the amount substantially to finish the front yard. another landscaper under contract to finish the backyard. Would like to add a comment the manger/owner of Las Vegas yard n block stands behind his words and helped me tremendously on finishing up the backyard,

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Josh Bodell

(5)

Eric and team did an amazing job. They worked with me for months while I got HOA approval for the project. Once they began working they were great, going over everything in detail and making sure things were perfect. This project included wall repair, stucco and paint repair, paver and turf installation. Extremely satisfied with this experience.

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Shana Shapiro

(5)

Chris, the design consultant, Dave the production manager, along with their install team Opulent were affordable, upfront with costs, efficient and professional. Attached are some before and after pictures. Highly recommend their services.

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Dawna OgleYohe

(5)

My initial contact was with Ray, whom did an excellent job giving me an estimate on what I wanted done in my small yard and walkway., the guys that came out and did the work were superior. They did an excellent job. I'm very pleased with this company. I will highly recommend them to family and friends, and I will be using them in the near future for other little projects.

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About Rock N Block - Turf N Hardscapes

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Clark County Historical Museum

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Driving Directions From Ugarte Landscapes & Irrigation Repair to

Driving Directions From New horizon landscapes to

Driving Directions From Custom Touch Landscape to

Driving Directions From A and L Desert Landscapes Tree Company to

Driving Directions From Paradise Landscaping Las Vegas to

Driving Directions From Las Vegas Backyards to

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Reviews for Rock N Block - Turf N Hardscapes

D. Lopez

(5)

We recently had a very positive experience with Rock N Block for our fence replacement. The entire process went smoothly and exceeded our expectations. Harvey and his team were incredibly professional and communicative throughout the project providing much-needed assurance and peace of mind. The crew was punctual and maintained a diligent and respectful attitude that made the experience pleasant. The crew finished the project ahead of schedule, and the quality of their work is impressive; our new wall looks great! We recommend Rock N Block for any fencing needs and look forward to working with them again. Thank you, Harvey and crew, for a job well done!

Terry lewis

(5)

Workers were great, no problem they did what was required, but the representative of your company mislead me on what was to be done, I showed pictures from a competitor landscaper, representative stated he could bet there , , . price, but since it wasn't in contract, I was left with uncomplicated backyard , working with owner at present, so he's been outstanding working on this situation, as amount of rock was way off and the owner did increase the amount substantially to finish the front yard. another landscaper under contract to finish the backyard. Would like to add a comment the manger/owner of Las Vegas yard n block stands behind his words and helped me tremendously on finishing up the backyard,

Dawna OgleYohe

(5)

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Shana Shapiro

(5)

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Josh Bodell

(5)

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- landscape edging Las Vegas
- landscape mulch Las Vegas
- gravel landscaping Las Vegas

Frequently Asked Questions

What maintenance is required for artificial grass?

Minimal maintenance is needed, such as regular cleaning to remove debris and occasional brushing to keep the fibers upright.

What makes Las Vegas landscaping different from other regions?

Las Vegas landscaping is shaped by the Mojave Desert’s extreme climate, with scorching summer heat and minimal rainfall. Traditional lawns demand high water usage, so residents often use xeriscaping techniques that require little irrigation. Designers focus on selecting native or desert-adapted plants—such as succulents, cacti, and ornamental grasses—and pairing them with gravel, boulders, and rock mulch. This approach not only conserves water but also cuts down on labor-intensive maintenance. Additionally, many yards incorporate shade structures, drip irrigation systems, and nighttime lighting to boost usability after sunset. Together, these elements create low-water, visually appealing outdoor spaces that celebrate Las Vegas’ desert character.

In which locations does Rock N Block operate?

They operate in Las Vegas, NV; San Diego, CA; Denver, CO; and Utah.

Which outdoor features can a Las Vegas landscaping designer add to my yard?

A skilled designer can incorporate a variety of features that suit desert living. Paver patios or stamped concrete decks handle intense heat and offer comfortable gathering spots. Shade structures, like pergolas or sail canopies, keep daytime temperatures more bearable. Fire pits and seating walls turn cool evenings into social retreats. Decorative rock beds highlight succulents or cacti, adding texture and a modern edge. Small water features—like bubblers or pondless fountains—introduce soothing sounds while reusing water. Low-voltage lighting extends outdoor enjoyment after sunset. The designer tailors each element to your preferences, climate constraints, and overall aesthetic for a balanced, livable yard.

How does Rock N Block ensure quality in artificial grass installation?

They follow a meticulous process, including site preparation, proper base construction, and use of high-quality materials to ensure a durable and aesthetically pleasing result.

landscape soil Las Vegas

Landscaping Designer Las Vegas

Phone : 888 894 2486

City : Las Vegas

State : Nevada

Zip : 89108

Address : 3267 N Torrey Pines Dr

Google Business Profile

Google Business Website

Company Website : https://rocknblocklandscape.com/artificial-turf/landscaping/

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