

WELL DRILLING COST

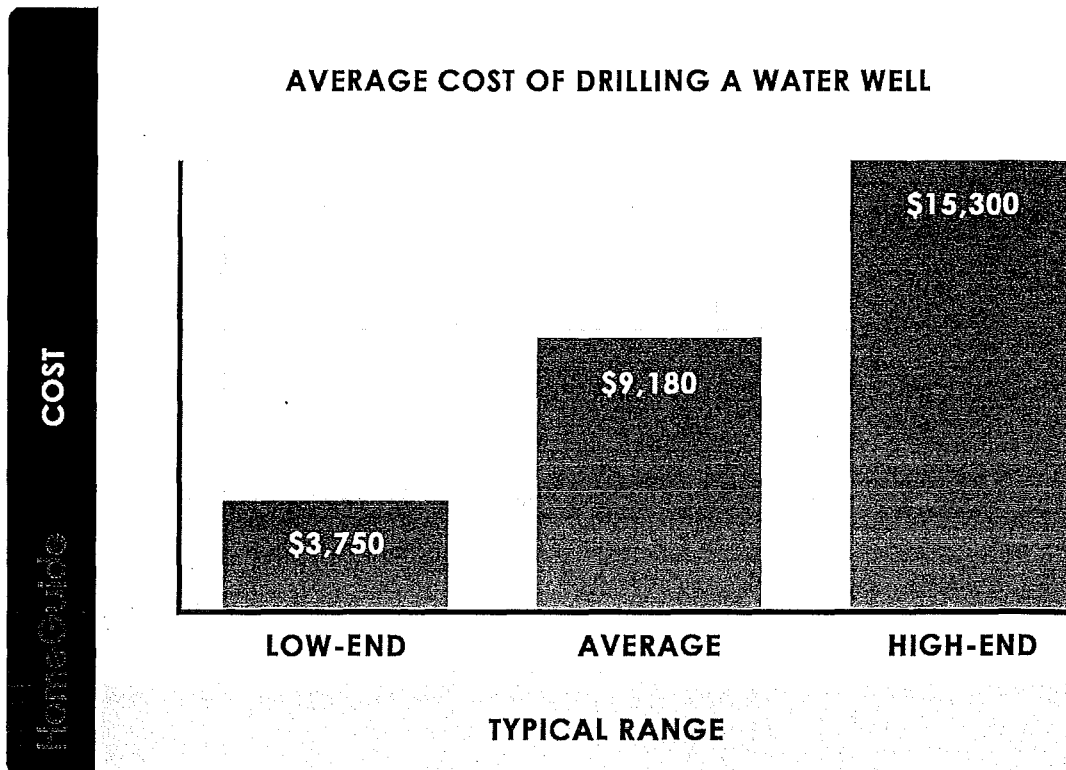
Depth In Feet	4" Diameter PVC Casing	6" Diameter Steel Casing	8" Diameter Steel Casing
50	\$1,775	\$3,060	\$4,200
100	\$3,550	\$6,120	\$8,400
150	\$5,325	\$9,180	\$12,600
200	\$7,100	\$12,240	\$16,800
250	\$8,875	\$15,300	\$21,000
300	\$10,650	\$18,360	\$25,200
350	\$12,425	\$21,420	\$29,400
400	\$14,200	\$24,480	\$33,600

*\*Prices are for a complete water well system.*

- ✓ Residential water wells are typically 100' to 300' deep and 4" to 6" in diameter.
- ✓ Local well drillers (/well-drilling) or neighbors can give you an idea of how deep

to drill.

- ✓ A well takes about a week to install and **lasts up to 40 years** with proper maintenance and care.
- ✓ A well provides free water for both residential and irrigation needs.
- ✓ Geothermal wells provide heating and cooling energy for your home.
- ✓ Any landowner may drill a well on their property.



#### AVERAGE COST OF DRILLING A WATER WELL

National Average Cost	\$9,180
Minimum Cost	\$1,775
Maximum Cost	\$30,000
Average Range	\$3,750 to \$15,300

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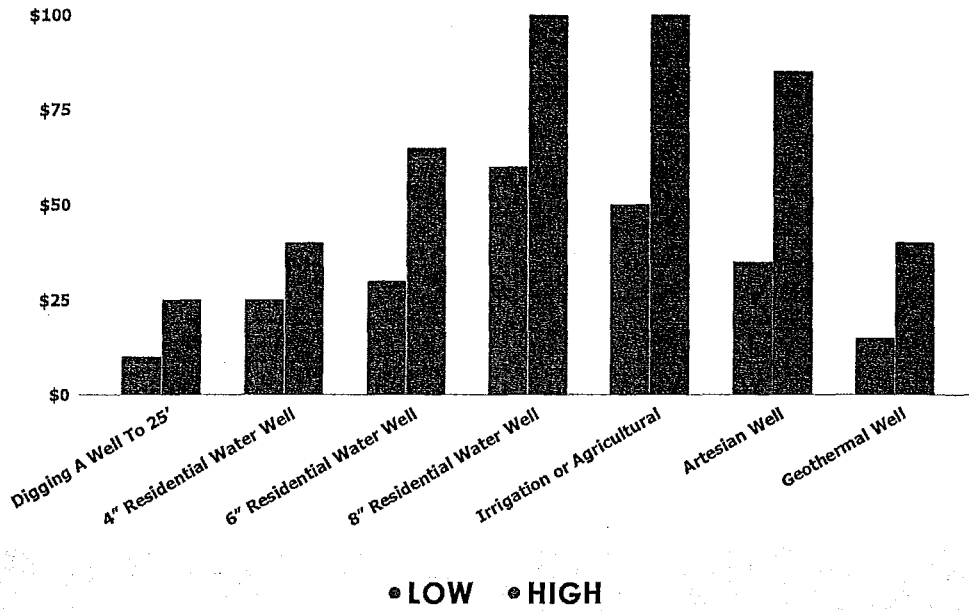
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## Well Drilling and Digging Cost Per Foot

Well drilling costs **\$15 to \$25 per foot** for the drilling process only. Installing a complete well water system costs **\$25 to \$65 per foot**, irrigation wells run **\$50 to \$100 per foot**, and geothermal wells are **\$15 to \$40 per foot**.

## WELL DRILLING COST PER FOOT



## WELL DRILLING COST PER FOOT

Type	Average Cost Per Foot
Digging A 3"–4" Well To 25'	\$10 – \$25
4" Residential Water Well	\$25 – \$40
6" Residential Water Well	\$30 – \$65
8" Residential Water Well	\$60 – \$100
Irrigation or Agricultural Well	\$50 – \$100
Artesian Well	\$35 – \$85
Geothermal Well	\$15 – \$40

*\*Prices typically include drilling, pump, casing, and complete installation.*

**Consult with a professional well driller.**

**[View Pros \(/well-drilling\)](#)**

## Residential Water Well Cost

Drilling a residential water well costs \$25 to \$65 per foot or \$3,750 to \$15,300 on average for a complete system and installation. Prices include the drilling, a pump, casing, wiring, and more. Total costs largely depend on the depth drilled and the well's diameter.

#### WATER WELL COSTS

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Item	Average Cost
Drilling Only	\$15 – \$25 per foot
Well Pump	\$300 – \$2,000
Well Casing Pipe	\$250 – \$2,500
Electrical Wiring & Control Box	\$500 – \$1,500
Pressure Storage Tank & Switch	\$300 – \$2,500
Water Treatment & Purification System	\$500 – \$3,000
Water Quality Testing	\$50 – \$650
Permit	\$350 – \$700
Water Heater	\$650 – \$1,600



## Cost To Dig A Shallow Well

The average cost to dig a shallow well is between **\$1,800 and \$3,000**, or **\$5 to \$10 per cubic yard** depending on the depth of the water table. Shallow wells are typically 25' to 50' deep, 3 to 10 feet in diameter, and are best in areas without rocks or any bedrock.

Dug wells capture water from shallow aquifers close to the surface and are lined with brick, stone, or concrete tiles to prevent the walls from caving in. Shallow wells produce less yield and are more difficult to protect from contamination. Drilling is the most common method of well construction.



## Irrigation or Agricultural Well Cost

Drilling an irrigation or agricultural well costs **\$25 to \$50 per foot** or **\$85 to \$105 per foot** for a complete installation. Residential irrigation wells cost **\$9,000 to \$15,000** on average, while many high-yield commercial wells cost **\$50,000 to \$100,000**, which typically includes the pump.

Commercial agricultural wells require a larger borehole and are drilled deeper to increase water volume to at least 6 gallons per minute per acre for a center pivot. Most states require a permit to drill and place limits called allocations on the amount of water that can be pumped out over time.

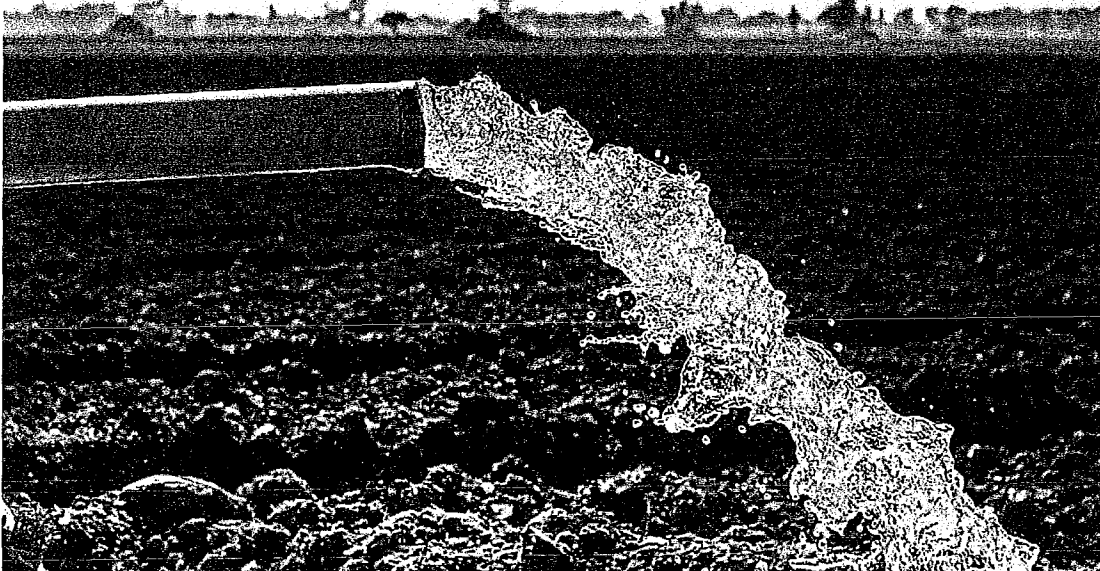
IRRIGATION OR AGRICULTURAL WELL COST

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Item	Average Cost
Residential Drilling + Pump	\$9,000 – \$15,000
Commercial Drilling + Pump	\$50,000 – \$100,000
Electrical Wiring	\$25 – \$50 LF + \$500 – \$1,000 per pole every 200 feet
Pressure Storage Tank	\$300 – \$2,500
Permit	\$564

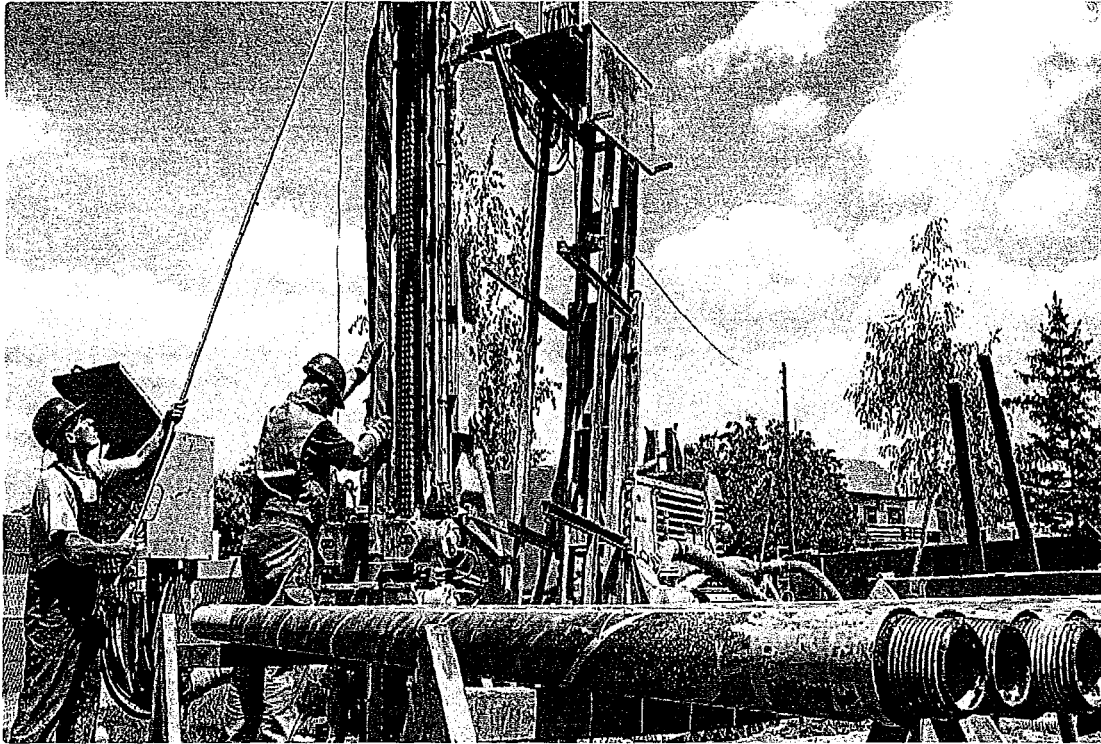
*\*Based on average depth of 100' to 300'. Add additional costs for solar powered pump, power supply, water treatment, deeper drilling, or larger pump.*



## Geothermal Well Drilling Cost

Geothermal well drilling costs \$15 to \$40 per foot or about \$3,500 to \$5,000 per well. Geothermal wells are typically 6" in diameter, 150' to 400' feet deep, and a 1,500 square foot home requires two 300-foot wells to provide adequate HVAC needs. The largest cost is getting the equipment to your job site, and geothermal well drilling contractors are sparse.

Geothermal wells work by sinking pipes filled with an ethanol solution 6 feet into a drilling location with a drill rig as a source of heating and cooling energy for a home. During colder months, the solution brings the heat back to the house; in the summer, heat is taken from the house and transferred to the ground.



## **Artesian Well Cost**

An artesian well costs **\$35 to \$85 per foot** or **\$5,000 to \$15,000** for drilling and casing to an average depth of 150 to 450 feet to hit an aquifer. Groundwater in aquifers between layers of rock is a pressurized body of water, causing water to flow naturally without pumping or electricity when tapped by a well. Although artesian wells cost more and need a specific location, they require low maintenance and ongoing expenses.

## **Sand Point Well Cost**

A sand point well costs **\$300 to \$3,000** and is a good solution for temporary water needs, delivering up to 3 gallons per minute. A sand point well is the most economical way to get water, can be installed by a homeowner, but may not last long or produce clean water at the right pressure consistently.

Sand point wells are similar to dug wells in depth, with a steel pipe driven around 20' deep and a 1-1/4" to 2" diameter. A screen on the end of the point filters the water from water-bearing sand, and it's drawn to the surface by a pump. Choose from kits with a hand pump or a jet pump. Installing a water tank is optional.



## SAND POINT WELL COST

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Item	Average Cost
Sand Point Kit	\$225 – \$500
Steel Down Pipe	\$100 – \$150
Jet Pump & Pressure Tank Combo	\$200 – \$600 + \$439 to install
Hand Pump & Small Tank Combo	\$100 – \$300 + \$146 to install
Sand Point	\$35
Well Cap / Seal	\$20 – \$40

### Downsides to Sandpoint Wells

- Requires a shallow water table; not suitable for depths beyond 25'.
- With certain strata, they clog easily, as do the screens.
- Only for intermittent use, not for regular water supply or irrigation.
- Water has to be pulled slowly to reduce clogging.
- Shallow water sources have a high potential for contamination if there is surface water runoff from a higher elevation.
- Water pressure might not be consistent.

### Cost to Redrill a Well Deeper

The average cost to redrill a well deeper is **\$3,000 to \$6,000**, or between **\$35 and \$84 per foot**, which is the same as drilling a new well. Hydrofracturing is another method used to increase water flow and costs **\$1,500 to \$3,000**. Explore both options before drilling.

There is no guarantee that deepening a well will yield water if the well has dried up. Many professionals only recommend deepening a well if it's not deep enough for hydraulic fracturing (at least 200' deep), or if hydrofracturing has been performed multiple times with failure to meet the water demand.

Hydraulic fracturing has a 97% success rate, requires no excavation, and uses highly pressurized water to break up the solid rock at the lowest level of the well to open new pathways for water to enter your well. Plus, the final cost will be known in

advance.

**Get free estimates from well drillers.**

**[View Pros \(/well-drilling\)](#)**

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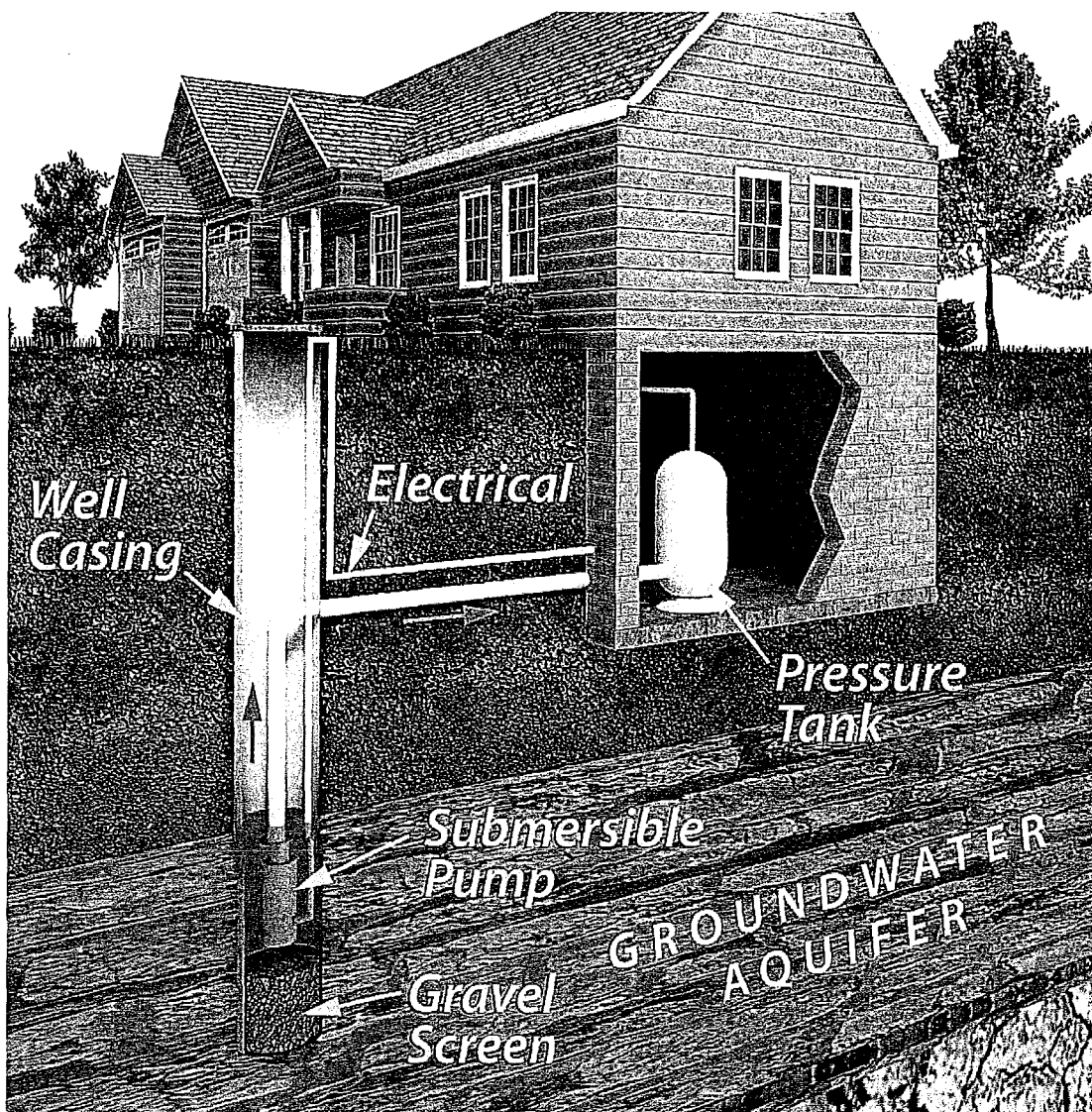
## **New Water Well Installation Costs**

Installing a new well water system ranges from **\$1,775 to \$30,000** or more, depending on the options you choose to power your well pump and the depth and diameter of the well. Drilling is the most expensive part, followed by the cost of the pump.

### **Water Well Drilling Process**

The water well drilling process varies based on the type of well you are drilling and the equipment used.

- 1 Once drilling hits the water table, the hole is cased to prevent it from collapsing on itself and hooked to the water lines.
- 2 Pumping equipment to get the water out of the ground is installed.
- 3 The well is capped to keep it clean and free from pests and contamination.



## Water Well Cost Breakdown

Here's a sample water well cost breakdown to get an estimate of your total costs.

### WELL DRILLING COST CALCULATOR

Item	Average Cost
Drilling	\$15 – \$25 per foot
Pump System	\$300 – \$2,000
Add Electric Line	\$500 – \$1,500
Water Treatment	\$638
Permit	\$564

Item	Average Cost
Lab Water Testing	\$395
Pressure Tank	\$309
Submersible Pump	\$308
Cycle Stop Valve	\$187
Control Box	\$71
Pressure Switch	\$47
Well Cap / Seal	\$18
Control Panel Wiring Kit	\$6

## Well Water Pump

Well pumps cost (/costs/well-pump-cost) \$300 to \$2,000 to install depending if it's a shallow well pump or a deep well pump, and the degree of incline from the well to the storage tank. Different types of wells require specific pumps; some need to be submersed while others are placed outside the well. If your well is deeper than 150 feet, or if there is an incline, you'll need a stronger pump.

### WELL WATER PUMPS

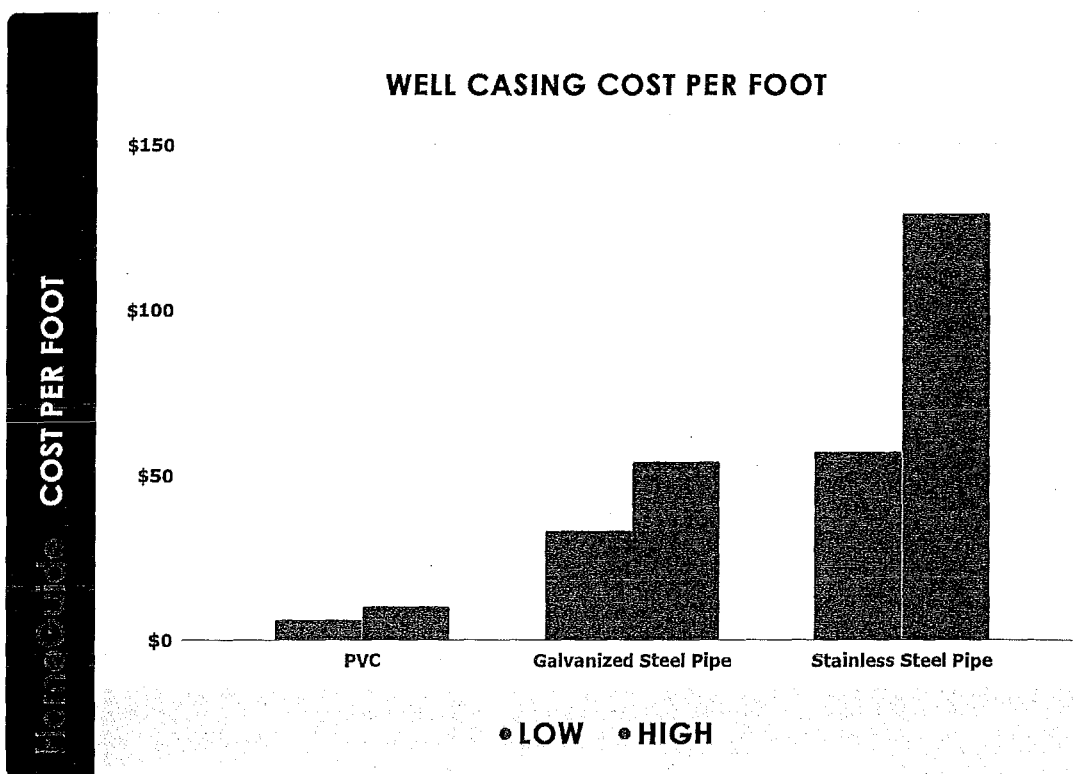
Type	Average Cost	Description
Shallow Well Jet Pump	\$300 – \$900	For wells 25' deep or less. Placed outside the well and covered with housing. A tank or a booster ensures constant water pressure, and has overload protection which prevents motor burnout.
Deep Submersible Well Pump	\$400 – \$2,000	Submersed inside wells 90' – 300' deep. Recommended using a 3-wire pump for easier maintenance. Repairing 2-wire pump's requires raising it to the surface first.

Type	Average Cost	Description
Convertible Jet Well Pump	\$400 – \$1,200	For shallow wells and deep wells up to 90' deep. Not submersible; placed outside the well and covered with housing. Useful in areas where the water table fluctuates.

## Well Casing Cost

Installing or replacing well casing costs **\$6 per foot** for PVC casing to **\$130 per foot** for stainless steel pipe casing. An average well needs 25' of casing below the surface that costs **\$250 to \$2,500** depending on soil conditions.

There are different types of casing, depending on where you live: steel, stainless steel, PVC, or concrete. Well casing supports the wall of the well and keeps dirt and rocks out of your water. Well casing is not required when drilling through hard rock as it provides its own support.



### WELL CASING COST

Type	Average Cost Per Foot
PVC	\$6 – \$10

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Type	Average Cost Per Foot
Galvanized Steel Pipe	\$33 – \$54
Stainless Steel Pipe	\$57 – \$129

Earthquake-prone areas require steel casing that won't snap if the earth shifts. Casing should be at least 5 inches nominal inside diameter, and at least 1 inch larger than the outer diameter of pumping equipment installed.

## Cost To Put In Well and Septic System

A septic system costs (/costs/septic-tank-system-cost) **\$3,280 to \$5,040** to install by itself on average. The cost to put in a well and septic system ranges from **\$6,000 to \$20,000** depending on the type of septic system, type of absorption field, size of the septic tank, and depth of well drilling required.

Most rural or off-grid homes use a well to deliver fresh water and a septic system to dispose of wastewater. Sometimes, homeowners have a choice between digging their own, or hooking into municipal water and sewer systems.

**Hire a pro to install your well and septic system.**

[View Pros \(/well-drilling\)](#)

## Well Caps and Seals Cost

Sealing or capping a well costs **\$20 to \$40** and are required to keep your well safe from contaminants.

- For **capped wells**, the water and power lines are underground. In northern regions where the frost line is 3 – 4 feet deep, there will be a sanitary well cap on the well above ground, and the pump will be suspended on a pitless adapter below the frost line.
- For **sealed wells**, the water and power lines pass through a gasket.

## Well Water Storage Tank Cost

The cost of well water storage tanks runs from **\$104** for a 2-gallon tank to **\$714** for a 44-gallon tank. Water tanks, or pressure tanks, draw water from the well and keep it under pressure, and delivered immediately when someone uses an appliance or a faucet in your home.

## Cost Factors To Dig A Well

Many different factors determine the cost to dig a well, such as the depth and diameter of drilling, ground conditions, water testing, your location, permits, and more.

- 1 Depth of drilling or digging
- 2 Diameter of well
- 3 Well Casing
- 4 Permits
- 5 Water volume requirements
- 6 Ground conditions
- 7 Availability of electricity
- 8 Equipment transportation
- 9 Pump and control panel
- 10 Materials (screens, seals, etc.)
- 11 Test pumping
- 12 Excavation
- 13 Water testing laboratory analysis
- 14 Water treatment system

## Shallow vs. Deep Well Depth

The drilling depth to water and bedrock and the well's diameter are the most significant cost factors. The average well is drilled **100 to 300 feet deep**, while some shallow wells only go down to 25 feet to reach groundwater. The diameter of residential wells are often 4 or 6 inches, which dictates the amount of water flow.

### SHALLOW VS. DEEP WELL

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Shallow Well	Deep Well
Average 25' to 50' deep	Average 100' to 300' and deeper
Dug well have a 3' to 10' diameter; sand point wells use 1-1/4" pipe inside the well casing	Typically 4" to 6" diameter; uses 2" or greater pipe inside the well casing

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## Shallow Well

Can go dry during a drought

Can be contaminated with E. coli or chloroform

## Deep Well

Doesn't go dry; A deeper and wider well increases well yield.

Uncontaminated if you and your neighbors install it according to regulations



**Consult with an expert to find your ideal depth.**

[View Pros \(/well-drilling\)](#)

## Ground Conditions

The geologic makeup of your area dictates the difficulty of drilling, which affects the cost. Is the ground sandy soil, rock, or heavy clay? Some wells drilled through rock are 400 feet deep. Local well drillers can guess at how deep you'll need to drill. The difference in cost can be:

### WELL DRILLING COST ESTIMATE BY GROUND CONDITIONS

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Condition	Cost Difference
Easy	-34%

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Condition	Cost Difference
Moderate	-16.22%
Partial Rock	+92.34%
Dense Rock	+155.38%

## Well Drilling Costs By State

The cost to drill a well depends on your soil conditions and water levels, which vary based on your location. Below are the approximate costs by state for drilling, casing, and complete well water system.

### WELL DRILLING COSTS BY STATE

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State	Average Cost Per Foot
Alabama	\$27 – \$59
Alaska	\$34 – \$75
Arizona	\$27 – \$58
Arkansas	\$26 – \$57
California	\$30 – \$65
Colorado	\$28 – \$62
Connecticut	\$30 – \$66
Delaware	\$29 – \$63
District of Columbia	\$31 – \$69
Florida	\$26 – \$58
Georgia	\$27 – \$59
Hawaii	\$33 – \$73
Idaho	\$25 – \$55

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State	Average Cost Per Foot
Illinois	\$29 – \$63
Indiana	\$27 – \$59
Iowa	\$27 – \$59
Kansas	\$28 – \$61
Kentucky	\$27 – \$59
Louisiana	\$28 – \$61
Maine	\$27 – \$58
Maryland	\$29 – \$62
Massachusetts	\$31 – \$69
Michigan	\$28 – \$62
Minnesota	\$28 – \$61
Mississippi	\$26 – \$58
Missouri	\$27 – \$59
Montana	\$27 – \$59
Nebraska	\$26 – \$56
Nevada	\$28 – \$62
New Hampshire	\$28 – \$61
New Jersey	\$30 – \$67
New Mexico	\$26 – \$56
New York	\$30 – \$65
North Carolina	\$27 – \$59
North Dakota	\$29 – \$64

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State	Average Cost Per Foot
Ohio	\$28 – \$61
Oklahoma	\$27 – \$58
Oregon	\$27 – \$59
Pennsylvania	\$28 – \$61
Rhode Island	\$29 – \$64
South Carolina	\$28 – \$61
South Dakota	\$26 – \$58
Tennessee	\$27 – \$60
Texas	\$28 – \$62
Utah	\$27 – \$59
Vermont	\$27 – \$58
Virginia	\$27 – \$59
Washington	\$28 – \$61
West Virginia	\$27 – \$58
Wisconsin	\$28 – \$61
Wyoming	\$28 – \$61

## Distance To House

Install your well close to the house to save on piping costs for water and electricity. A main water line typically costs **\$30 to \$60 per foot** to install. Adding a power line to your well costs **\$1,500** on average, while a solar-powered pump costs **\$1,500 to \$3,000** to install.

Every county's building department has different requirements for the location of a well, but the minimum distances from the wellhead are:

- ✓ 5 – 10 feet from your property line
- ✓ 50 feet from your septic tank
- ✓ 100 – 200 feet from the septic tank drain field and utility lines

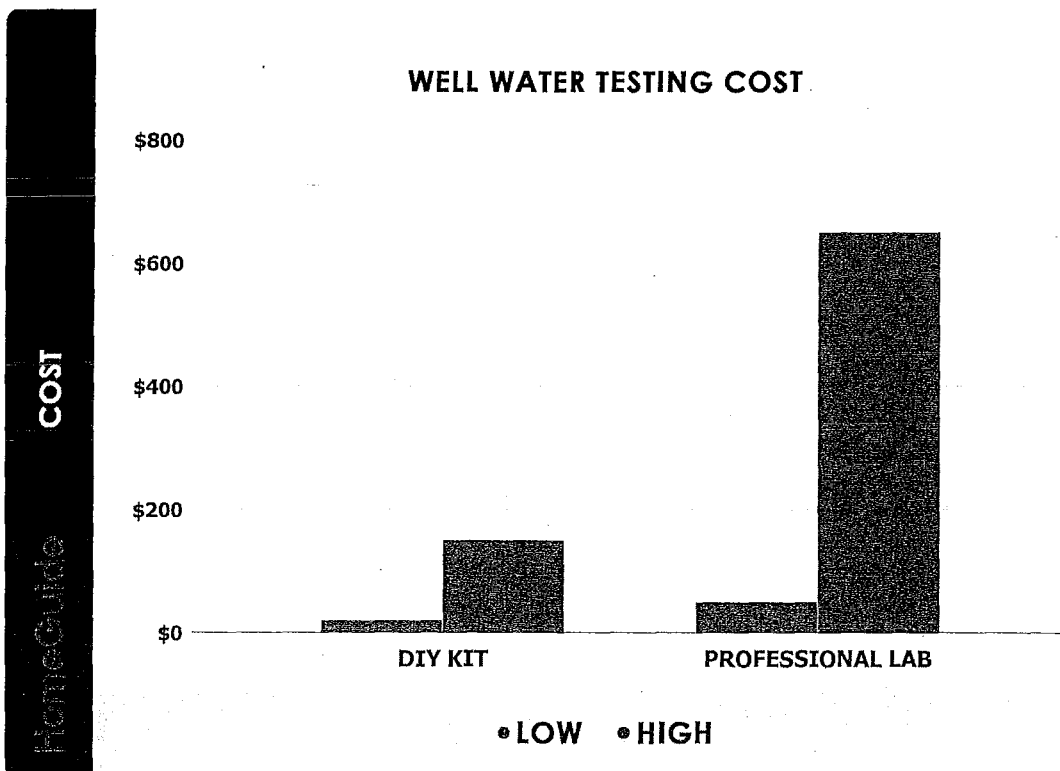
## Well Permits

Well permits cost **\$350 to \$700** on average, depending on where you live. A residential permit typically includes multiple inspections to ensure the well is drilled correctly, capped, and connected to the water main of your home. A permit is generally not required when a well is less than 2" in diameter.

The water will be tested to make sure it's safe to drink, and you'll receive a report about the mineral content and whether any contaminants are present. Different counties will have different permit fees and regulations. Check with your county clerk's office to file a water well permit application.

## Well Water Testing Cost

Well water testing costs **\$20 to \$150** for DIY kits or **\$50 to \$650** to hire a government or university lab for professional testing. Lab testing checks for contaminants, chemicals, metals, and pollutants and provides an analysis with recommendations. Testing is required to make sure your drinking water is safe.



<b>Company</b>	<b>Average Cost</b>
Clean Water Testing ( <a href="http://www.cleanwatertesting.com/">http://www.cleanwatertesting.com/</a> )	\$80 – \$399
Safe Home ( <a href="https://envirotestkits.com/lab-test-kits/">https://envirotestkits.com/lab-test-kits/</a> )	\$160 – \$325
Water Check ( <a href="https://watercheck.com/collections/symptom-checker">https://watercheck.com/collections/symptom-checker</a> )	\$120 – \$230
US Water Company ( <a href="https://www.uswatercompany.com/services/well-water-testing">https://www.uswatercompany.com/services/well-water-testing</a> )	\$95 – \$369
My Tap Score ( <a href="https://mytapscore.com/collections/well-water-tests">https://mytapscore.com/collections/well-water-tests</a> )	\$139 – \$650

Numerous water contaminants (<https://www.epa.gov/node/83209/view>) should be tested for such as—E. coli, bacteria, fluoride, arsenic, copper, lead, radon, iron, radium, nitrate, nitrite, uranium, methane gas, pesticides, manganese or sulfur, MTBE, tannins, and general pH being the main concerns.

## Private Well vs. Municipal Water System

The cost of electricity to run a private well is about **\$3 per month** and water is free. Once the water well is paid off, the average family of four **saves \$250 to \$500 per year**, or more if the well is used for irrigation.

### PRIVATE WATER WELL VS. MUNICIPAL WATER

<b>Payment (Per Month)</b>	<b>Municipal Water</b>	<b>Water Well</b>
Water 12,000 to 24,000 Gallons	\$20 – \$40	\$0
Electricity	\$0	\$3.46
Loan Cost Over 15 Years (Optional)	\$0	\$65 – \$142
Maintenance	\$0	\$10 – \$20