

AN INTRODUCTION TO **INSTALLING** **INGROUND** **FLAGPOLES**

A STEP-BY-STEP GUIDE TO D.I.Y. FLAGPOLE INSTALLATION



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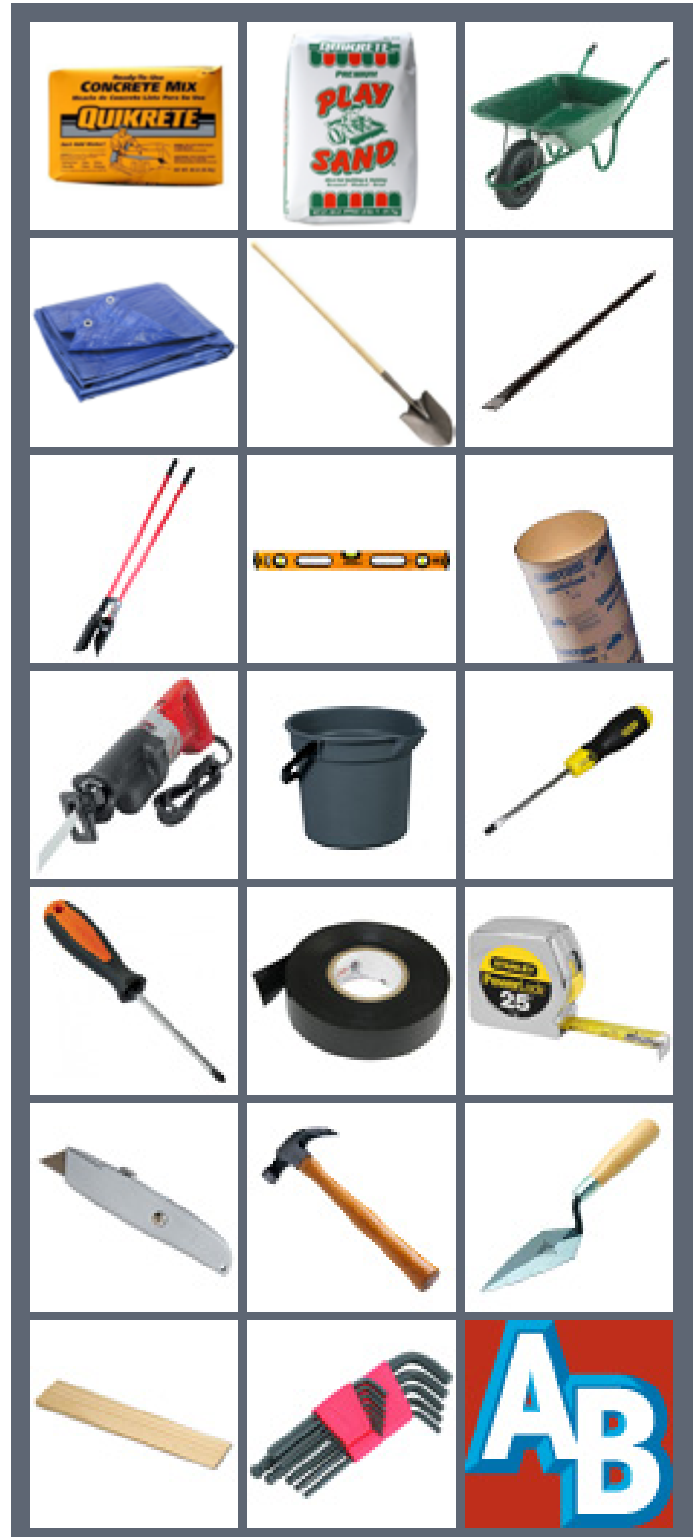
• **CHAPTER ONE** •

What You'll Need

Intro to Installing Flagpoles

What You'll Need

- Quikrete
- Dry Sand
- Wheelbarrow
- Tarp
- Long Handle Shovel
- Pry Bar
- Post Hole Digger
- Level
- Sonotube/Pole Sleeve
(often included with flagpole)
- Sawzall
(to cut sonotube if needed)
- Bucket
(or access to a water source)
- Screwdrivers
(flathead and phillips)
- Electrical Tape
(color to match rope/halyard)
- Tape Measure
- Utility Knife
- Hammer
- Trowel
- Wooden Shims
- Allen Keys
(for mounting hardware)





Above: Examples of residential flagpoles displaying Old Glory in ideal locations, keeping the flag safe from nearby structures, trees, and powerlines.



**He who is best prepared can best
serve his moment of inspiration.**

- Samuel Taylor Coleridge



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FREE FLAG REGULATIONS & ETIQUETTE GUIDE

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• **CHAPTER TWO** •

Choosing a Flagpole

Intro to Installing Flagpoles

Choosing a Flagpole

The first order of business is to determine what type of flagpole will work best with your needs. During this decision you'll want to consider the flagpole material, height, your personal preference as to style, flag size, and the all-important flagpole location.

Material:

While wood was once a popular choice, today aluminum or fiberglass is the standard. Modern aluminum flagpoles come in large sizes, are offered in an array of colors and finishes, and are extremely durable. Fiberglass poles are also available in various colors and finishes, and are made of strong materials designed to flex slightly in the wind.

Height:

If the desired pole site is near a building, the building's height may help determine flagpole size. For a single story structure, you'll want a flagpole 15-25' high. A two-story structure may require a 25-30' pole, and at three stories, a larger 30-40' pole may be appropriate. If you are planning on flying your flag after sundown, you should consider adding lighting, which "technically" is required by U.S. law for displaying the American flag at night.

Preference as to style:

While there are several factors to consider, the most important is personal preference. At the end of the day, it's your flagpole and no one else's. Internal halyard flagpoles, for example, are generally more expensive than external halyard poles, however they add an extra layer of security as the cable is concealed inside of the pole. With external halyard poles, on the other hand, the ropes are exposed on the outside of the pole. Discuss your needs with a flagpole specialist, like Accent Banner, to better understand the full range of options available.





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• **CHAPTER THREE** •

Choosing a Location

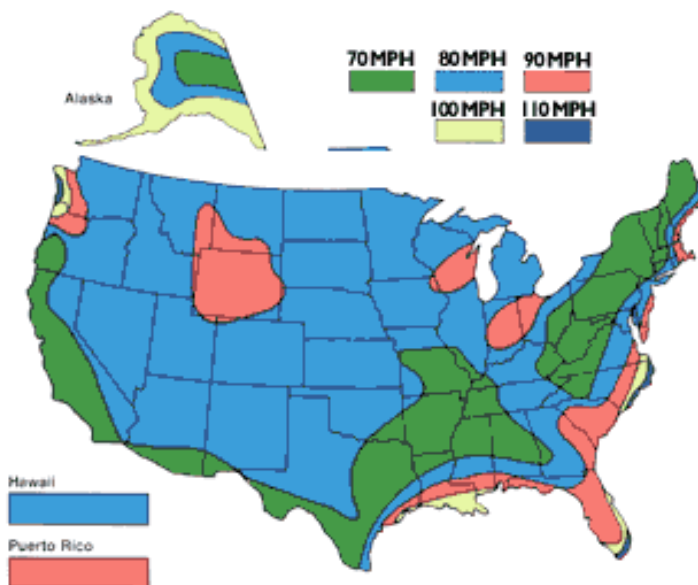
Intro to Installing Flagpoles

Choosing a Location

Choosing the right location for your flagpole is just as important as choosing the flagpole itself. However there are a number of aspects to flagpole location that you should be aware of before making your final choice, including local wind conditions, surrounding landscaping, and the location of nearby utilities.

Wind Exposure/Conditions:

Wind exposure is another very important factor to consider when choosing the right pole. Flagpoles are designated a maximum MPH wind rating which is comprised of two numbers. The first number refers to a pole's integrity with flag hoisted; the second number is without a flag. Unless you plan to take down your flag during high winds or inclement weather (which you should), you'll want to focus on the first number. If your area has severe weather you may want to purchase a flagpole with a higher wind resistance to deal with these conditions rather than risk flagpole repair.



Your geographic location determines the big picture relative to wind factors but the installation location also has a major effect. High wind locations include open countryside, farms, industrial areas, building rooftops, along side highways, and proximity to bodies of water. Areas you can expect low winds include residential areas and areas with wind blocks from large or tall features like trees, walls, and bridges. If strong wind gusts occur at your location, we suggest purchasing a one-piece pole. Sectional or even telescoping poles are acceptable in less windy environments.

**See the wind chart at the end of this eBook to size up the wind in your area.*





Surrounding Landscape:

Flagpoles should be sited away from nearby trees and buildings. Placing the flagpole to one side of a building's entrance gives it great visibility. While traditionally flagpoles are located to the left of the front entry when looking directly at the building, the center of a circular driveway is an equally popular spot. Remember to be cognizant of the future growth of nearby trees.



Location of Nearby Utilities:

Existing overhead utility lines can make a tremendous difference when it comes to your flagpole location. In addition to avoiding the area directly beneath cable, power, or phone lines, you should maintain a buffer zone of at least ten feet when working around them. The foundation for your flagpole cannot be located above any underground lines either – such as gas, sewer, or any lines that you'll need to access in the future. Additionally, be aware of sprinkler pipes, septic lines, and electrical lines for landscape lighting before you install your flagpole (See the following chapter about contacting local authorities like DigSafe first).

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• **CHAPTER FOUR** •

Flagpole Rigging & Installation

Intro to Installing Flagpoles

Flagpole Rigging & Installation



Step 1: Call DigSafe

Once you've chosen your flagpole and location, it's time to dig the hole. In the Commonwealth of Massachusetts the law requires that you call DigSafe before you break ground. DigSafe is a free service that lets you know if it's a safe spot to excavate. Visit <http://www.digsafe.com> to learn more about their service. Other states have similar organizations and services.

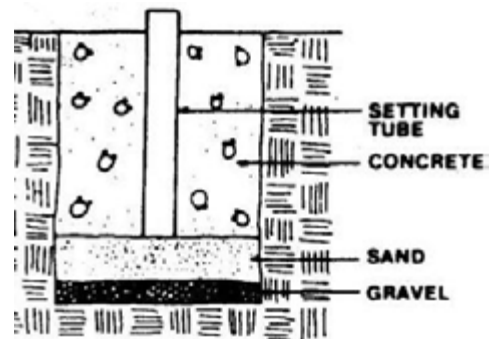
Step 2: Dig Foundation Hole & Set the Pole Sleeve:

The dimensions of a flagpole foundation are directly related to the height of the pole. For every 10' in pole height you must dig 1' in depth, width, and length, i.e. 1 cubic foot. For example, the foundation for a 30' pole must be 3' deep, by 3' wide, and 3' long. While digging the hole be sure to set aside any larger-sized stones for use later in leveling the pole sleeve.

Once the hole is dug to size, throw a small amount of gravel and sand into the base for drainage. Set the sonotube/ pole sleeve in the center of the hole. Next, you'll need to level the sleeve to make sure the sides are plumb. Keeping the sleeve level, place the stones gathered earlier around the outside cavity of the sleeve. This step provides additional support when it comes time to pour the concrete foundation.

Now that the sonotube/pole sleeve is sitting securely inside the hole it's time to mix the Quikrete. Follow the directions on the packaging, and when ready, pour the Quikrete around the pole sleeve. While pouring, use the level to make sure the pole sleeve stays plumb. **This step is crucial.** Any unevenness will result in a tilting pole. Continue to pour the concrete around the pole sleeve until the hole is filled to about one inch from the top.

After ensuring again that the pole sleeve is level, let the concrete dry for a minimum of 24 hours. On the following day, fill the exposed edges around the sonotube/pole sleeve with earth to make the foundation flush with the lawn.



Step 3: Unwrap Flagpole and Attach Hardware

Now that the pole sleeve is cemented into place it's time to unwrap your newly-purchased flagpole and its accompanying hardware. Take out the hardware and start by mounting the "truck" to the top of the flagpole. The truck is the piece of hardware that is affixed to the top of the flagpole through which the rope/halyard is threaded. It acts as a pulley when raising the flag.



With the truck in place attach an ornament to its top in the threaded hole provided. You may need to purchase this ornament separately. Typically, flagpole ornaments are gold balls or flying eagles. **Side note: Eagle ornaments have been known to damage flags if the flyend gets caught up in the wings. You may be better off choosing a ball ornament or other smoothed surface option.*



Included in an external halyard flagpole setup will be a cleat, which mounts to the side of the pole. You'll want to attach the cleat firmly as it is used to secure the rope/halyard to the flagpole.

Step 4: Attach the Rope/Halyard and Thread Through the Truck

Once the hardware is mounted to the pole, unwrap the rope/halyard and thread it through the truck (pictured to the right). At this point you'll want to tie the two ends of rope together. You'll need a tight connection. Use a square knot or other self-tightening knot. Wrap the knot with electrical tape to smooth it out and add extra reinforcement. Before you continue to the next step, slide the "collar" or metal ground base halfway up the pole. You can use the rope provided to tie the collar to the cleat while standing the pole.



Step 5: Raise the Flagpole!

Depending on the size and material of the flagpole that you've chosen, you may need a crane or bucket truck to lift the pole into place. Typically any pole over **25ft.** requires a crane or utility vehicle to help lift it. (When ordering your pole, ask about its weight. This will give you an idea of what you'll need to raise it.) While holding the flagpole base into the sonotube/pole sleeve, lift the top half of the flagpole. Once high enough the pole should slide into place. Some smaller poles can be installed by "walking them up" until the flagpole base falls into the sleeve. While doing so, be sure to have a second person hold the base into position.

With the pole finally upright check to be sure it is plumb using wooden shims inside the pole sleeve to keep it in position. Add dry sand in the space between the pole and the sleeve. As the sleeve fills, tap lightly on the pole to help the sand disperse evenly around the pole. Repeat this process until the sand has filled the sleeve completely. At this point you can pull out the wooden shims and lower the collar or metal ground base to cover the hole. Take care not to scratch the pole with the collar on the way down. Now that the flagpole is in place, snap hooks need to be attached on either side of the taped square knot. Be sure to space the snap hooks to coincide with the grommets on your flag. Thread a small loop of rope/halyard through the bottom ring of the snap hook. Then push the snap end of the hook through the rope/halyard loop and pull the rope/halyard tight. At last, attach your flag and hoist it with pride.



Congratulations! You're the proud owner of a beautiful new flag and flagpole.



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FLAGPOLE WINDSPEED CHART

Nominal Exposed Height	Overall Length	Base Diameter	Top Diameter	Wall Thickness	Maximum Recommended NYLON Flag Size	ANSI - NAAMM Windspeed 1001-97 Unflagged	ANSI - NAAMM Windspeed 1001-97 w/Nylon Flag	ANSI - NAAMM Windspeed 1001-07 Unflagged	ANSI - NAAMM Windspeed 1001-07 w/Nylon Flag
15'	17'	3"	2"	0.125"	3'x5'	170	120+	155	110+
20'	22'	3"	2"	0.125"	4'x6'	123	90	112	80
20'	23'	4"	2"	0.125"	4'x6'	163	110+	147	100+
20'	23'	5"	3"	0.125"	4'x6'	255	120+	230	130
20'	23'	5"	3"	0.156"	4'x6'	291	130+	262	130
20'	23'	5"	3"	0.188"	4'x6'	316	130+	288	130+
20'	23'	6"	3.5"	0.156"	4'x6'	300	130+	300	130+
20'	23'	6"	3.5"	0.188"	4'x6'	323	130+	300	150
25'	27.5'	3"	2"	0.125"	5'x8'	94	50	86	60
25'	27.5'	4"	2"	0.125"	5'x8'	120	90+	107	80
25'	28'	5"	3"	0.125"	5'x8'	154	100+	137	90+
25'	28'	5"	3"	0.156"	5'x8'	201	120	175	110
25'	28'	5"	3"	0.188"	5'x8'	235	130	211	120
25'	28'	5.5"	3.5"	0.188"	5'x8'	256	130+	232	130+
25'	28'	6"	3.5"	0.156"	5'x8'	195	120+	226	145
25'	28'	6"	3.5"	0.188"	5'x8'	222	120+	248	150
25'	28'	6"	3.5"	0.250"	5'x8'	290	150	282	150
30'	33'	4"	2"	0.125"	6'x10'	97	50	89	65
30'	33'	5"	3"	0.125"	6'x10'	110	85	100	80
30'	33'	5"	3"	0.156"	6'x10'	126	95	114	85
30'	33'	5"	3"	0.188"	6'x10'	147	100+	131	90+
30'	33'	6"	3.5"	0.156"	6'x10'	195	120	175	100+
30'	33'	6"	3.5"	0.188"	6'x10'	222	120+	200	120
30'	33'	6"	3.5"	0.250"	6'x10'	259	130+	234	130+
30'	33'	7"	3.5"	0.188"	6'x10'	232	150	232	150
35'	38.5'	5"	3"	0.125"	6'x10'	90	85	82	65
35'	38.5'	5"	3"	0.156"	6'x10'	100	80	91	75
35'	38.5'	5"	3"	0.188"	6'x10'	111	90	100	80
35'	38.5'	6"	3.5"	0.156"	6'x10'	129	95	116	85+
35'	38.5'	6"	3.5"	0.188"	6'x10'	164	100+	143	90+
35'	38.5'	7"	3.5"	0.156"	6'x10'	184	120	166	110
35'	38.5'	7"	3.5"	0.188"	6'x10'	209	120+	189	120+
35'	38.5'	8"	3.5"	0.250"	6'x10'	269	150	246	150
40'	44'	7"	3.5"	0.156"	8'x12'	138	95	122	85
40'	44'	8"	3.5"	0.156"	8'x12'	180	110+	162	90+
40'	44'	8"	3.5"	0.188"	8'x12'	203	120+	184	120
40'	44'	8"	3.5"	0.250"	8'x12'	240	140+	217	140
45'	49.5'	8"	3.5"	0.188"	8'x12'	166	110	148	100
45'	49.5'	10"	3.5"	0.250"	8'x12'	248	150	226	150
50'	55'	8"	3.5"	0.188"	10'x15'	127	95	115	85
50'	55'	10"	4"	0.188"	10'x15'	185	120+	168	110+
50'	55'	10"	4"	0.250"	10'x15'	216	140+	196	140
50'	55'	10"	4"	0.312"	10'x15'	237	150	218	150
50'	55'	12"	4"	0.250"	10'x15'	247	150	226	150
55'	62'	10"	4"	0.188"	10'x15'	157	110+	142	100+
60'	66'	10"	4"	0.188"	12'x18'	136	95	121	85
60'	66'	10"	4"	0.250"	12'x18'	167	110	155	100
60'	66'	12"	4"	0.250"	12'x18'	213	120+	188	130
60'	66'	12"	4"	0.375"	12'x18'	251	150	230	150
65'	72'	10"	4"	0.312"	12'x18'	167	120	151	100+
65'	72'	12"	4"	0.250"	12'x18'	205	150	187	140
70'	77'	10"	4"	0.312"	15'x25'	145	95	131	85+
70'	77'	12"	4"	0.250"	15'x25'	169	115	150	100
70'	77'	12"	4"	0.375"	15'x25'	192	140	188	130
75'	83'	12"	4"	0.375"	15'x25'	191	120+	174	110+
80'	88'	12"	4"	0.375"	20'x30'	174	115	157	100

