



How to Build a Pool Deck

By

CreateYourDeck.com

Note from Createyourdeck.com

“How to Build a Pool Deck” is a compilation of all our research regarding above ground pool decks. We’ve taken what not only is standard and essential to the success of your building project, but also what we thought was the best information deriving from hours of research and the professionals we spoke with.

This eBook also includes tips, warnings, and practical suggestions that are involved with above ground pool deck construction and the logical planning strategies that can help make your vision a reality.

The eBook has been organized into a logical sequence so that, if you were to follow the recommended steps in order from the first chapter to the last, you can build an above ground pool deck.

If you want to maximize the effectiveness of this eBook and apply it equally effectively to your pool deck project, read it through completely at least once to introduce yourself to the concepts and steps you’ll have to take. Reading it through twice would be even better. Once you’ve read through the eBook, you can go back to it for easy reference as you plan and build your pool deck.

Then, as you proceed with your planning and construction, go one or two steps at a time. It’s best to learn and then apply one or two steps at a time rather than rush through each step or skip ahead and risk making costly mistakes.

Ultimately, it’s up to you to decide how to read “How to Build a Pool Deck” and then how to apply the valuable knowledge you’ll acquire in this eBook.

This eBook has been structured so you can do what you want to do... and that’s learn how to build an above ground pool deck.

It’s also important that I thank Denise Clark, Jana Brock, and Cijaye Depradine. Their help made this eBook a reality.

Best regards,

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Introduction

Congratulations! You've finally decided to take the plunge and create your own above ground pool deck. You've been thinking about it for a while, but just haven't worked up the nerve to take the next step. You don't have to be especially gifted with hammer and saw to take on a deck project.

Building a deck is something that a novice can do, and with a little help and information before you get started, will prove to be an exciting and enjoyable experience.

Knowing what to expect, and figuring that you might run into unexpected troubles once in a while during your project, will make your job a lot easier and take much of the stress out of planning and constructing your own deck. What's the worst that can happen? You pull out a few nails, toss a badly cut or measured piece of lumber and move on.

Anticipating some problems that you might run into ahead of time takes much of the guesswork and worry out of any home improvement project. Following simple guidelines and approaching your project logically, and one step at a time, you'll find the process involved in building a deck is not as difficult as you may have thought.

This doesn't mean that it's going to be easy. Such a project takes time and effort, but if you take your time and plan your moves before you act, and work carefully, you can build the deck of your dreams. All it takes is a little determination, a bit of elbow grease and some patience.

Do you have to do everything the way we tell you to, in the order we have offered? No, there are more ways than one to skin a cat. However, if you are new to carpentry or building, you may want to proceed at a more cautious pace than someone who builds decks for a living.

When it comes to building your deck, we'll talk you through the entire process. You may want to read through the entire eBook at least once before you get started, so that you may anticipate and plan for each part of the deck building process.

For better results, separate each phase of the deck building process into easy, manageable steps. Try to resist the temptation of placing time limits on how fast you complete any particular task to ensure that you complete each step to the best of your ability. We have included average time frames to complete various phases and tasks throughout the building process. This is just an average estimate for novice to intermediate building skill levels.

Before we get down to the nitty-gritty of the actual excavation and construction phase of such a project, we'll cover the most basic topics of planning and constructing your deck, including planning phases and methods, how to choose the best type of lumber for your project, as well as to help you deal with city building codes and requirements and building inspectors.

We'll make an effort to anticipate potential trouble spots or issues ahead of time, which will be covered by explaining the best scenarios for every stage of the building process, from sketching out your idea to finalizing your deck decorations.

As with any construction or home improvement project, safety is an important consideration. Before you get started on your project, familiarize yourself with the tools you'll be using to complete the job. If you're not familiar with power tools for example, visit your local hardware store and handle them first.

Always use safety gear such as eye goggles when using power tools, and watch your fingers. Focus on your tasks to prevent mishaps, and make sure that your work area is safe.

So, if you're ready to create and build your deck, let's get started.

Chapter 1:

Deck Anatomy

You don't have to be an expert at construction to attempt any home improvement project, but knowing a few of the more common terms involved in any particular endeavor always makes smoother sailing. Whether you've never built anything before, or if you've completed other home improvement projects and know the basics of materials and tools, we'll just cover a few that are specific to constructing an above ground pool deck. Bear with us; this will only take a minute.

Above ground pool decks comprise the basic components of just about any other deck that is built, with a few slight modifications. For example, all decks will need **footings** or **piers**, which are pieces of concrete poured into the ground that support the decking posts. **Posts** are typically 4x4 or 6x6 square pieces of lumber that come in a variety of lengths that support the actual deck and any railings.

Header Joists form the outside frame of a joist structure. **Girders** are pieces of lumber that will hold and support the **joists**, which are evenly spaced pieces of lumber that hold the **decking** in place. **Cantilever** is just a fancy way of saying "an overhang". The distance of overhang when designing supports for your deck is important to know.

Ledgers are pieces of lumber, usually a 2x8 or larger, that are bolted directly into a house foundation to provide support for one side of a deck attached to a house or other permanent structure. Most above ground pool decks will not require the use of ledgers in the construction process.

Railings of various designs will support **balusters**, or upright slats of a railing system, while **railing caps** provide a finished look for the top surface of a railing.

Stairways use **stringers**, which are the decline angle supports for a stairway, while **treads** are a fancy way of saying steps.

If you're old enough, you'll remember building with Lincoln Logs. Using the same principal, you build a deck from the ground up, one piece or section at a time, one portion of the project supported by the one under it. Some decks are fancy, others rather simple, but all employ the same basic building structure order: bottom to top. However, when you *design* your deck, you'll want to start from the top and work your way down.

Lumber Basics

A rose by any other name may still be a rose, but not so with lumber. There are many different types, grades and density of lumber, and knowing the difference between them, and the right kind to use constructing your pool deck, may mean the difference between a nice deck and a superior one.

An above ground pool deck requires special attention to choice of wood. Rot resistant lumber is important, as it may be wet a good deal of the time. Wood is absorbent, smells good when wet, feels better on your nether parts and is easier to lounge around on than tile or cement.

Your deck will be required to hold up to just about every weather condition you can imagine, so using a type of wood that is weather, as well as insect resistant, is one of the most important choices you, the deck builder, will have to make. Several of the most common choices for wood decks include, but are not limited to cypress, untreated ironwood and pine.

Later in this book, we'll explain in greater detail how to choose the correct type of wood for your pool deck according to your location, your needs, and your designs. For now, let's just stick with the basics and define the difference between different types of lumber.

Remember that all wood will swell when it gets wet, and shrink as it dries, so anticipating a certain amount of twisting and warping is normal. However, choosing a wood that resists such twisting and warping will stand you in better stead as your deck ages and will reduce your chances of having to replace boards in the future.

Keep in mind that not only the type of wood you choose, but also its moisture content and its drying ability, as well as what part of a tree it comes from, can make a difference in quality and suitability for your deck needs. We'll explore more about lumber in Chapter 6.

The Importance of Foundations

Sure, this is a part that no one's going to see, but structurally, it is one of the most important aspects of your building and construction plans. If your foundation isn't solid, you can bet your deck won't be, either. The **deck load**, or the weight of the deck, railings, and objects placed on the deck, including furniture, plants and people must be supported by the foundation and footings.

Most building codes require foundations and footings to be able to bear up to 8,000 pounds for a 10 x 16 foot deck, or roughly 50 pounds per square feet of deck. Since loose soil and sand won't bear that much weight, you need to make sure that the foundation and footings of your deck are able to distribute such weight equally.

Properly spacing footings and supports is also an important part of determining what you will need in terms of foundations for a wide number of scenarios, which will be explored further on.

When planning your pool deck, and if your pool hasn't been constructed yet, you may also want to consider a concrete foundation beneath the pool. A concrete foundation will offer a secure platform for your above ground pool to rest on, preventing buckling or stress caused by sifting soil conditions or erosion or excess water runoff that might tunnel beneath non-supported pools.

Above ground pools filled with water can weigh several tons. A well drained gravel base of up to six inches deep, topped with roughly four inches of concrete slab, will offer the pounds per square foot requirements of most above ground pools.

Deck foundations bear weight loads at specific points – all decks utilize footings, which provide thick, weight-bearing supports for the decking structure. There are different kinds of foundations, such as:

- Combination Footing and Pier Foundations
- Pier-Block Foundations
- Continuous Post Foundations

A combination footing and pier foundation is a one-piece foundation that, as the name implies, is designed with footing and an upright pier tube reinforced with rebar for superior stability. This belowground type of foundation is ideal for decks built low to the ground.

Pier-Block Foundations

A pier-block foundation, aka a pre-cast pier block, is a pyramid shaped block of cement that comes with pre-cut grooves that hold beams or anchors. This type of foundation is good for ground-level decks that won't be jarred by earthquakes.

Continuous Post Foundations

A continuous post foundation, such as a steel post that anchors into footings at ground level and onto the wooden support structure of the decking by steel brackets, are ideal for raised decks. Rust preventive coatings ensure that such posts last longer and are more durable than wood posts in many climates.

When attaching footings, framing and other parts of the decking substructure, you'll need a variety of fasteners and screws and nails. Knowing when to use each, and what type to use, will make your job not only easier, but stronger and more durable as well. Don't worry; we'll cover all of that when we get to the construction phase of your project.

Deck Fasteners

Holding the pieces of your deck together is important. Whether you use nails, screws or bolts, make sure that you are following building code requirements for the use of each during every aspect of the building process.

Whether you're building the foundation, attaching joists or securing the decking to the framing system, many codes require that builders use certain fasteners at each stage of the process.

No matter which type of fasteners you use on your deck, make sure they are corrosion and rust resistant. Galvanized screws and nails, as well as stainless steel options, provide the best results for both durability and looks.

Become familiar with terms such as lag screws and J-bolts. Know the difference between a carriage bolt and a joist-hanger nail. If you are not familiar with these items, spend an hour at your local hardware or building supply store and take a look at them.

Deck fasteners such as deck strips and slot ties may come in handy during your deck building project, and the more you know about them, the better off you'll be. Learn the difference between joist hangers and post hangers. Joist hangers look different than an angled joist hanger or an angle bracket. Post anchors are often available in different styles as well, as are post beam caps and post bolt caps.

If you have purchased pre-designed deck plans, take them to your local hardware or lumber supply store and check out the materials list to ensure that you are familiar with every direction supplied by the building design plan. Doing so now will make your job easier after you break ground and install your first footing form.

Now that you have a basic understanding of deck anatomy and terms, it's time to plan your deck.

Chapter 2:

Planning Your Deck

Before you start sketching out ideas of what you think you want your deck to look like, you need to decide what you expect from your deck. What do you want a deck to provide you? Perhaps most important of all, don't settle for less when it comes to designing the pool deck of your dreams.

If you really, really want a wraparound deck for your above ground pool, don't settle for anything less! If you do, you'll be wasting time, money and the effort involved in building the deck, and you'll be less inclined to use and enjoy it when it's finished.

Your pool deck needs to be designed with *your* vision of how your deck is intended to be used. Is your deck mainly to provide easier access from the house to the pool for the kids, or do you plan on lying out in the sun this summer? Is there enough room for a reclining chair or a swing hammock? Will you want some privacy from neighbors?

No one wants to feel exposed or to offer his or her every move to public view. In such cases, you might want to consider some privacy fencing or a trellis of some sort to provide shelter from peering eyes.

Privacy and wind screens are ideal for not only protecting bathers from wind, but from the eyes of neighbors.

Such screens must be firmly anchored into the ground to withstand gusts of wind. Some gap must be included in the design of vertical or horizontally angled slats in order to facilitate air circulation.

If a privacy fence is over 3 feet high, it needs to be anchored into the ground with 4x4 posts. When considering such a screen, remember that the sheltered area provided by a screen is roughly twice the height of the screen.

Is entertaining or barbecuing on the agenda? Are you planning to entertain on it, and if so, how many people will generally be enjoying both deck and pool?

In the Mood for Light

Lighting issues also need to be addressed, especially if you plan on entertaining or using the pool during nighttime hours, which is very common in most areas in the warmer summer months. Appropriate lighting will enhance the features of your deck and provide safety without the feeling that you've just made a prison break and a spotlight is illuminating your every move to neighbors.

Before you build, you will also need to determine where electrical, phone and other utility wires or tubes are buried. Your local utility providers will come to your home, at no cost to you, to flag those lines before you start digging.

If you want to install lighting for your deck, try to locate as much of the wiring for that as possible underneath the deck.

Low voltage lighting systems or 120-volt wiring options are fairly inexpensive choices and don't require you to bury wires, in addition to being easy to install. Remember to provide access hatches or panels to reach any electrical boxes or fuses.

General lighting provided by house lights equipped with 150 to 250 watt bulbs are adequate for many locations, but adding decorative lampposts or lights using lower wattage bulbs can add a nice ambience for nighttime entertainment.

Mood lighting is very popular with outside pool areas and can be placed on railings, stairs and pathways to and from your pool deck according to taste and need.

Mood lighting options usually take 120-volt outdoor circuitry, and dimmers and switches can be used to offer greater control of lighting needs according to use and desires. However, as with other aspects of the deck building process, make sure that you are aware of code requirements, down to the wiring and voltage that such fixtures take.

A lot of cities and towns don't allow anyone but a certified electrician to install 120 volt wiring. Even if your local building code allows a do-it-yourselfer to install wiring, have an electrician take a look at it to make sure that future safety is ensured.

Consider using outdoor "Christmas" light type strands of lights to provide your outdoor lighting needs. Strings of light around the top railing of a pool deck offer a great option for nighttime pleasure. Plastic "tube" lights are also popular and will provide a waterproof casing for your lights, perfect around active pool goers.

Planning Issues and Concerns

Realize also, before you start clearing an area for your deck, that every home improvement project may hit a snag or two during the planning or construction process. When planning your deck, take into consideration:

- Soil conditions
- Drainage conditions
- Slopes
- Trees and other obstacles

When it comes to soils, the footings that will be required to support your deck are dependent on the type of soil in your yard. In addition, soil loses some of its capacity to bear weight loads when it gets wet.

Gravel or compact sandy soils, or a mix of them, offer the best drainage as well as the highest load bearing capacity. The worst types of soils are soft clays or shale, and offer poor drainage.

If you don't know what type of soil you have in your yard, take a sample of it to your town's building department inspector or engineer for advice.

There are five types of soils: sand, clay, limestone, silt and peat. Here's an easy trick to determine which you might have in your yard.

Take a sample of soil from the yard where you plan to build your deck. A tablespoon or so will do. Then, moisten with a little bit of water. If you can form the soil into a ball, and the soil remains in that shape, you have sandy soil.

If you can take that ball and flatten without it cracking or falling apart, you have silt, or loamy soil. If you can then take that flattened ball and roll it into a tube or sausage shape, you have loam. If you can take that tube or sausage and turn it into a horseshoe shape, you have clay-type soil. Of course, to be double sure, have it checked.

In general, compact gravel or sand soil, or a combination of a loose sand and gravel mixed soil, can bear up to 12,000 pounds per square inch of weight, while soft clay soils can bear only up to 2,000. Remember that your deck foundation and footing choices and spacing will be determined by the type of soil you have, so before you proceed, you need to know your soil and plan accordingly.

Drainage is an issue when it comes to planning the location of your deck foundation and footings. Adequate drainage is essential to prevent settling. In addition, you will need to plan your deck so that water buildup under the decking is prevented.

Standing water will not only eventually loosen soils and possibly your deck footings, but will also attract mosquitoes and algae. Providing a slight grade to the building site is an ideal way to address this issue.

Don't allow rain gutters from the house to empty onto your deck or near deck footings. For minor drainage issues around your deck, consider a ring or bed of shaved wood or gravel stones around the pool and deck to absorb excess water. Plants will enhance visual appeal. Limit erosion with grass, shrubs or drainage trenches to prevent weakening footings.

If your yard contains a slope, multi-leveled decks look best. This may mean a little more work for you, but the results will be amazing. Homeowners with this scenario may want to consider building the main portion of the deck at ground level and section the rise to the home level with landing platforms.

Or, if the slope is not extreme, the use of different footing heights will provide a level deck surface without having to resort to multi-level decking designs. While a slope may create a more difficult environment and construction process, it also offers unlimited opportunities for deck builders.

One of the most important things to remember when planning a deck on a sloping site is to accurately measure the total drop in elevation over the horizontal distance of your deck.

When planning your deck around existing trees or other permanent objects in your yard, try to save them whenever possible. When planning around a tree, try to determine its age and growing speed, and adapt your plans accordingly.

Take into consideration how the tree moves when it's windy so as not to crowd it at its base. Circles, squares or raised borders around tree trunks that extend through a deck can provide interesting options, as well as provide shade and interest in your deck.

All the above scenarios need to be taken into consideration when designing your pool deck. This is not the time to cut corners or skip steps, because once your deck is finished, it's finished!

Make sure, before you start building, that the deck you've designed adequately addresses all your potential needs and desires for future use. Better to throw away a few extra pieces of sketching paper rather than realize too late that your deck is about 20 square feet too small.

In addition to your desires and needs for your future pool deck, you also need to take available space into consideration. Naturally, you can't build a deck that will overwhelm your entire back yard. A well planned deck should enhance the design and shape of your house and yard, not detract from it.

If you have a family, ask for their ideas and input. What do they want from the deck as well? Incorporate these ideas into your initial rough sketch of your deck and then compromise in design, structure and style until everyone is happy.

Chapter 3:

Visual and Layout Planning

Necessary Items:

Measuring Tape

Paper

Ruler

It might be easier for you to draw a rough sketch of what you plan if you have photographs of your yard from various angles to look at. For example, you'll remember that tree over there, or the dip in the ground at the left side of the yard, where the septic tank is located.

No matter what shape or condition your back yard is in, it helps to come up with Plan A and Plan B when it comes to visualizing a sketch for your new deck. However, those with small yards may be limited in options, but larger yards will provide a number of potential, and pleasing, possibilities.

Your first, tentative drawings can include a wish list of sorts. Go with the flow here, and experiment with different sizes and angles. If you're completely new to construction, you might want to opt for a simpler deck design, such as a square or rectangle, but even a novice can create a beautiful deck of any shape from the ground up with little effort and stress if care has been taken during early planning stages.

A deck should evolve in your mind, and on paper, as you play with dimensions and needs. Your initial sketches and drawings should also note location of house windows, property lines, easement lines and any obstacles or issues that must be dealt with later on, such as electrical boxes, telephone and other utility line paths, trees, driveways and so forth.

When drawing out designs, keep thoughts regarding privacy and ease of access uppermost in your designs. For example, you don't want to place stairs to your deck in an awkward location any more than you'd want to locate the sunbathing deck nearest to the street.

Including trellises for privacy as well as enhancing the design of your deck should be considered, as well as benches that can serve both seating and storage needs.

For many, the bottom line in any design and scope of project is cost. The cost of your dream deck will depend not only on size, but accessories and building materials as well.

Curved designs may provide a challenge to beginners, but again, any deck can be built with determination and a little knowledge.

A round deck surrounding an above ground pool is fairly easy to design and construct. Whether you hire a contractor for portions or all phases of construction is up to the individual, but doing it yourself can save thousands of dollars that can later be spent on building materials and supplies. More on contractors later.

Taking the weather and seasons into consideration is also important during this sketching phase. Sure, it might be 90 degrees and calm outside right now, but does your deck layout offer any shade or privacy at this point? Will there be too much shade on the deck during prime swimming hours later in the season?

Positioning your deck to take advantage of both sunlight and shade should play an important part of your design plans. Make sure the deck won't be too hot or too cold for users to enjoy. Southern and western exposures are best to take advantage of afternoon and evening sun, especially in cooler climates.

Northern exposures are typically cooler and provide less direct sunshine, but may be desired in very hot and dry climates. In colder climate areas like mountains, a southwest exposure for most of the decking area will provide cozy warmth spring, summer and fall.

This is also where trellises and privacy fences come into play. Careful positioning will offer shade during the hottest parts of the day if desired, but may also block welcome breezes as well.

Watch tree shade as the day progresses and determine where shade lands in relation to where you plan the location of your future deck. Wind is also an issue, and can be dealt with, in many cases, by railings and plants.

Consider sitting outside in various locations throughout the day to try to determine what types of climate and temperature issues you might have to deal with in your particular location. Would you be comfortable there for an hour or three? Does the sun blaze down on you, or does the wind drive you to distraction? Take such things into consideration when still in the planning stage, not after the deck has been built.

For spacing considerations, there is a general rule of thumb followed by most professional deck-building contractors. For example, if the deck is to be used as a special use area, allow at least a standard 6 to 8 feet of space between the pool and the outside edge of your deck. Check your local building codes first.

Your deck will probably be about 4 feet off the ground, but if you have a specially constructed above ground pool, you will need to take that into consideration when planning stairs, railings and the width of your deck, depending on space considerations.

Multi-level decks solve a large number of issues, including slope and large entertaining needs. Just keep in mind that stairs are best created *after* the deck has been constructed.

Wait until the deck is finished, but before you attach railings, to determine exactly where you want to place your stairway posts and landing slab. This way, you may avoid errors in measurements or design without having to tear up slabs or waste lumber on stairs that have to be altered or moved.

After you have sketched the rough design of your new deck, let it sit for a couple of days. Take the time to anticipate problems or issues that might arise from your design layout.

A day after sketching your best draft, you may remember that you didn't take into consideration that electrical easement along your property line, or forgot that your wife's rose garden blooms right where you planned on placing stairs to your deck.

The sketching and layout phase is not to be rushed. Take your time planning the location and design of your deck and make sure you're happy with it before you break ground.

Remember, think ahead to potential problems and find solutions to them before you even think about laying a deck foundation. This phase can take a week or a month or more. Keep tweaking your ideas and plans until you have something that just doesn't improve anymore and everyone is happy with. Have fun at this stage of the planning process!

Chapter 4:

Decking Plans

Necessary Items:

Sketching Paper

Building Supply List

Now that you've sketched out a rough idea of what you want in a pool deck, or any deck for that matter, it's time to devise a blueprint or diagram of your project so that you can determine building materials and needs, as well have something definitive to take to your local city government for approval of your building plans.

Think through the entire process, from start to finish, before you purchase supplies or dig that first foundation posthole or drive in your first nail. Doing so will help to insure a smooth building process, with a minimum of unexpected problems or difficulties.

Professional deck builders suggest that you create four different drawings of your project:

- **Site Plan** – this drawing plan takes into consideration other objects and sections of your yard that will surround your deck. The location of your deck will be shown within the basic boundaries of your yard. Building inspectors will also look at this plan to determine easements, property lines and setbacks, so make sure you measure accurately.
- **Overhead View** – This version is also known as the Bird's-Eye view, and will show what you envision as if you're looking down at it. Incorporate the measurements and locations of all the main portions of your planned deck, i.e. footings, railings, stairs, etc.
- **Elevation Drawing** – This view should depict what your deck will look like from the side and the front, and take into consideration any slope or multi-level aspects of your deck design.
- **Detailed Drawing** – This version should show railings, benches, awnings or storage boxes or benches that you have included in your design plans.

The bird's-eye view is usually drawn to $\frac{1}{4}$ to $\frac{1}{2}$ inch scale, which means that every quarter or half inch on your diagram is equal to one foot in reality. This plan needs to show the layout of your proposed deck, as well as the spacing between foundation footings, posts, railings, joists and all necessary measurements noting dimensions, stairs and other deck features.

Elevation drawings use a scale of 1 inch equals 1 foot in your drawing. It also shows the height of various deck portions and should also indicate the depth of your foundations, the height of the deck off the ground, and the size of beams, posts, joists and, if necessary, cantilevers.

However, there are several different approaches to drawing a detailed deck design that homeowners can use. Some of the most common, and popular, are "bubble" drawings, computer software design plans, or having a professional landscaper and contractor draw up your deck plans using your rough sketches as a guideline.

A "bubble" plan is hand drawn and uses circles, or "bubbles" to indicate major areas of your landscape design. This process is quite simple and helps get the drawing process started. Using a basic diagram of your deck idea, place a piece of tracing paper over it, as well as having any design notes and even photographs of your back yard handy as well, for easy reference.

Start a bubble design by drawing circles or ovals on your paper that include things or objects in your backyard, such as patio, play area for the kids, or lawn areas. A bubble plan is not meant to be extremely detailed.

This type of design allows the deck designer to attempt several different options or variations of the basic deck plan to see what might look and work best for your specific needs.

Label items as you go, and don't forget things like the vegetable garden or your dog's house.

Computer software designs are a great help, especially to novice builders, who may want, and need, a little extra help in the organizing and design process. Creating easy to read drawings and diagrams is made simple with the use of a wide variety of software packages, which may be found at your local office supply or computer store.

These types of design products allow the user to experiment with different options within a basic design, such as stairs, railings, balusters and other deck accessories and ideas.

Some software versions allow a 3-D rendition drawing with rotating images so that the user can take a virtual tour of their proposed design. This is great for spotting problem spots or issues such as placement of stairs. Such software options also offer suggestions on building materials and supplies needed for each design that is chosen.

Some of the most common deck planning and building software on the market today is:

- Instant Deck Design – Broderbund/IMSI
- 3-D Deck – Books That Work
- Instant Landscaping – Topics Entertainment
- Deck Design/Build Software – Big Hammer

Okay, if you really don't want to deal with all the measuring or bubble plans and you're not even comfortable with designing your own deck using computer software programs, you may consider a professional contractor to draw up some deck plans for you.

However, keep in mind that a contractor may only be able to offer you a fairly simple deck design. An architect will certainly be able to offer more in regard to design, but may cost an arm and a leg. A designer is a good bet, but may be more difficult to find than a contractor or an architect.

To find a designer that handles exterior projects and design needs, try contacting a local construction or independent design company. If they don't have any employees on staff that can help, they may be able to offer suggestions on where you can look next.

Many independent contractors may agree to draw a deck plan for you for a nominal fee. Whatever route you decide to go, check to make sure the contractor or designer or architect specializes in deck design, or at the least, has several deck projects in their portfolio.

Keep in mind that many such contractors or independent agents may be limited to the size of project as well as engineering specifications that may need to be addressed by your specific deck idea or location situation.

This brings us now to city governments, building codes, approval plans and your favorite neighborhood building inspector.

Chapter 5:

City Codes, Plans and Inspectors

Necessary Items:

Finished building plan to take to City Building Department

Procure building permits

If you're like many homeowners, you know what a hassle it can be to deal with your city government when it comes to home additions, improvements and the home improvement plan approval process.

However, as those very same homeowners know, the best way to increase the value and future sale of your home is to have any major home improvements approved and certified by your local city government.

Proof of such improvements are often requested by future homeowners who want to make sure that building and safety codes for windows, roofs, driveways, pools and of course, decks, have been built to current specification structure and safety guidelines, and using quality materials.

Building code rules and regulations may differ from town to town and city to city, but they all specify minimum acceptable safety guidelines and materials in the construction or renovation of properties. These codes are in place to protect homeowners and the structures they live in.

Many people think that if you "Do it Yourself" that you don't have to have a project approved or inspected by a city government official or building inspector. Wrong! Don't make the mistake of building first and asking permission later, or you might find yourself not only being fined, but in some cases, asked to re-do or dismantle what you have done so that inspections can occur.

Building codes can be broad and general in scope, or more specific, in relation to residential or commercial buildings, house or exterior additions and structures, and yes, even pool decks.

Many towns and cities develop their own building codes, though many incorporate what are called "model codes" into their own. Such model codes provide national standard specifications and guidelines, rules and regulations for materials, such as, for example, those used in electrical systems.

Most building codes will include structural safety issues. For decking, these would be basic guidelines as to what size beams are acceptable for foundations, for example, and that framing and joists and beams meet various weight load requirements.

Before you start on your decking project, you will be required to have, in most localities, your deck building plans approved. This is because in most regions, a permit is required anywhere that a building project requires a foundation, and that goes for piers as well.

This is to insure that your design is structurally sound. Local building departments have different, though very specific, foundation requirements.

For example, some require steel reinforcements in footings, while others do not. Be on the safe side and check first as to what requirements are needed in your town or city before you purchase your building supplies.

Fees and paperwork will differ in each city, so find out ahead of time what is needed so that each step of the process is completed in the most efficient manner possible.

Before some decking plans will be approved and a building permit issued by city governments, a building inspector might need to visit your property to determine soil conditions and excavation needs prior to pouring or laying down foundation footings.

The rules and regulations regarding handrails, guardrails, railings, stairs and the height of all the above may differ between various cities, but are considerations that must be addressed before you break ground. As a matter of fact, many cities have requirements as to how much space you must put between balusters, as well as strength requirements.

Does this mean that the city can nix your building plan?

The answer is yes, so make sure that you know ahead of time, while still in the design drawing process, what is required in your city. Building inspectors can be tough to deal with, because they are ultimately responsible for the quality of work that is being completed.

Dealing with the Building Inspector

When it comes to having your plans or construction work inspected, remain calm. Yes, it's true, as many of you already know, that some building inspectors like to nitpick and cause needless worry. However, most building inspectors are just doing their job the best they can, so a little understanding and patience goes a long way toward smoothing out this part of the process.

For example, let your building inspector know if you plan to do any electrical or plumbing work and make sure that you get local code guidelines and specifications beforehand.

This also gives you an opportunity to let him or her know that you are aware and intend to follow codes and regulations.

In addition, offer the inspectors clean, well-drawn plans and designs that include measurements and construction details. This way, they will see that you are serious and conscientious about constructing a safe and code-acceptable project.

Don't be surprised to find the building inspector knocking at your front door during the construction process. Surprise visits by inspectors insure that homeowners are following rules and regulations and give them a chance to inspect your work as it progresses.

A building inspector may appear while you're laying footings, as well as constructing framing, and even as you approach the finishing stages of your deck construction project.

Don't resent such intrusions. Welcome them instead, as they may provide invaluable advice during any phase of the process, and prevent mistakes that you might have overlooked, which can save you time, money and effort.

Make sure that you invite inspections at critical stages of your deck construction process. For example, if city codes require that you have the footings inspected before you lay the foundation, then don't jump ahead because you're impatient. If you've made faster progress than you anticipated, let your local building department know that you're ready to proceed, but need to have the inspector take a look at it before you can.

Last but not least, don't forget to check with your local building department to make sure that your neighborhood doesn't have any building restrictions or architectural standards that might prevent you from building your dream deck.

Just remember, building inspectors are people too... well, most of the time. Many of them come with built-in attitude, but most are reasonable and fairly easy to work with. To facilitate a good working relationship, make sure that you are professional and organized.

Present your plans and materials neatly and quickly. The more detail you provide in your plans, the less the building inspector has to question your knowledge and skill.

Following is a list of the most common questions that homeowners ask local building department personnel:

- How deep must footings be?
- What are the codes for railing height and baluster spacing?
- How close can the deck be to the property line?
- What are the lumber requirements for posts, joists and girders?
- Do rebar reinforcements need to be inserted into footings?

Try also to anticipate and derail any structural issues before submitting your plans for approval. Such questions answered before you submit your deck plans to the building department will go a long way to ensuring that you receive the building permit for your deck project.

Now that you have that building permit in hand, it's time to start shopping for supplies, starting with your lumber purchase. First, however, you need to decide what type of lumber and decking you want, as well as how to identify only the best lumber for your needs.

Chapter 6:

Choosing Your Lumber

Okay, now to the good stuff. Lumber generally comes in a variety of sizes, though 2x4s are the most common. This is the measurement of the piece of wood *before* it's dried and surfaced at the mill. Usually, lumberyards and home improvement centers will carry lengths of wood in two foot increments after 8 feet is reached, so, for example, you can purchase 2x4s in 8, 10, 12 and 14 foot lengths, sometimes more depending on where you go.

The most common size of wood used for pool decking is a 5/4x6 (which literally measures out to about 1 inch thick by 5.5 inches wide). Why doesn't the wood actually measure out to what it's supposed to be? Probably to keep things complicated and confusing, but just go with the flow.

So, remember that a:

2 x 4 actually measures $1\frac{1}{2} \times 3\frac{1}{2}$

2 x 6 actually measures $1\frac{1}{2} \times 5\frac{1}{2}$

1 x 8 actually measures $\frac{3}{4} \times 7\frac{1}{4}$

Lumber density also plays a part in how your finished deck will withstand various weathering conditions. There's a happy balance between low and high-density woods.

Lower density woods may twist less, but they are weaker and more prone to splitting. Still, they absorb moisture when weather is wet and dry as soon as the sun comes out. Dense woods are stronger, but also warp and split, because they don't absorb moisture as well.

What to choose? It's best to use high-density woods like Douglas Fir and Southern Yellow Pine for substructures, where strength is more important than looks, and lower density woods on decks and railings to reduce splinters.

Wood grain is also to be considered when choosing lumber for your pool deck. Trees contain two kinds of wood: heartwood and sapwood. The sapwood is found around the outer perimeter of a tree trunk, while the heartwood is found further into the interior of the trunk. Heartwood is denser than the sapwood, but both are suitable for most deck building projects.

Novice builders usually ignore lumber grades. Generally speaking, lumber is sorted into three main grades of quality: 1, 2 and 3.

The higher the grade, the more expensive the wood. Number 1 is, of course, the best and the strongest. Number 2 is most commonly used for deck framing and substructures.

Most building codes call for Number 2 grade or better lumber quality. Number 3 grade is not generally suited for framing or support.

Now that you know that all lumber is not created equal. While it may all look the same to many people, different types and grades of lumber are used for different projects. The type of wood you use on your deck is going to be different than the type of wood used on the foundation or framing structure.

In the first chapter, we talked about deck anatomy. In this chapter, we'll go into more depth about the types of lumber you can, and should use, in the construction of an above ground pool deck.

For the foundations and framing portions of your deck, common 2x4s are necessary to form supports for your deck. Be aware that most building codes expect a minimum grade 2 when it comes to 2x4s, and that a grade 3 may not be approved.

Remember the difference between heartwood and sapwood when it comes time to choose decking materials for your project. Heartwood is the part of the tree that is closest to center, while sapwood is taken from areas closer to the bark.

Heartwood is denser and more rot and disease resistant than sapwood. So, decking that is made of cedar or redwood heartwood will last a lot longer than the same planks of sapwood.

In addition, lumber generally contains a vertical or a flat grain. Narrow grain lines that run along the face of the board easily identify vertical grain wood.

Wider lines that sometimes form a 'V' shape in the face of the plank mark flat grain woods. However, if you look carefully, you'll notice that many boards combine the two types of grain.

When choosing lumber yourself, choose as much of the vertical grain boards as you can find, as they are less likely to warp or shrink than wider grain boards.

Remember also that wet wood will shrink as it dries. Take care to cover your wood supply from the elements when necessary. For most deck construction and framing jobs, wood grade number 2 is adequate for your needs. However, for railings and areas that are visible, such as stair frames, you might want to spend a few extra dollars and choose grade 1, as it will provide a finer finished product.

Good Wood versus Bad Wood

Choosing good wood takes a little extra time and patience, but your efforts will pay off in the long run. Avoid selecting pieces of wood that are bowed, cupped or split. Some of the most common wood defects are listed below. These defects go for planks, studs or decking boards.

Split: A crack extends through the board at one or both ends. If short enough, the crack or split can be trimmed off and the board used for other needs. Otherwise, don't use it.

Knots: Knots are common in stud grades. Of course, looks are most commonly associated with knots. In most uses, a knot will not affect surrounding wood, though they may be difficult to drive a nail through. When using joists, boards with a knot over one inch in diameter within the bottom third of its length should not be used, as it may weaken over time.

Bow: If you can look down the length of the board and see that it curves up at both ends, it is bowed. Such a factor doesn't weaken the wood in any way, though you may need to straighten it as it is fastened in place.

Cup: This defect is caused by a bend inward across the width of the board. Nails and screws can often straighten cupped wood in decking, though you may want to place the board upside down so that water does not gather in the 'cup'.

Twist: If you notice the board twisting on either end, don't use it for either decking or framing. It's kind of like having to deal with the grocery cart with the stubborn wheel. Select a better board and save yourself the aggravation.

Joists and girders most commonly use structural grade lumber. Such lumber is often 'crowned'. This means that if you look down the length of the wood, you may see a slight bend, or what is called a crown.

Check the pieces you want to use for girders and joists, and then mark the lengths of wood where you see the crown. When setting the girders or joists in place, situate the 'crown side' facing upward, which will provide additional strength to the deck frame.

Wood for Decking

For decking woods, many choices are available, from pine to cedar to redwood to... yes, even synthetic decking. Redwood is perhaps the most commonly used wood for outdoor building projects, as it is legendary for its strength, durability and plain good looks. It is a bit more expensive than other woods, and may be difficult to find depending on your location, but if you can swing it, choose redwood for your decking project. You'll be more than pleased with the looks of your deck, as well as its longevity and ease of care and lack of splintering.

Like other woods, redwood comes in a variety of grades, ranging from clear to "all heart" to "construction heart" or "deck heart" choices. Redwood is generally separated into two different categories: garden and architectural uses.

Architectural is the more expensive of the two. Heartwood redwood is also darker and redder in color than sapwood. Sapwood may also remain wet longer than heartwood and can turn a light gray color after several years, which can be quite attractive in its own right.

Cedar is the next best choice for decking woods, because it is durable like redwood, only cheaper. Like redwood, cedar is not prone to splintering, which makes it a great choice for pool decks and bare feet. And, like redwood, cedar heartwood is disease and decay resistant, though the sapwood is more prone to both.

Because cedar isn't as strong as redwood, avoid using it for structural posts and joists or beams. Like redwood, cedar is also available in a variety of grades, though the most common in the United States is Western red cedar.

The typical choice of many deck builders, the 5/4 decking with rounded edges, is perfect for around-pool construction. This type of decking has two different 'faces'; a rough side and a smooth side. When building, remain consistent with your choice of which side you're going to use to face the surface.

Cypress wood is quite common in the southern states, and is just as durable as redwood, but in other areas of the country, it may be harder to find and more expensive to order than choosing redwood or cedar. Other types of treated wood products are also available for decking purposes, including pressure treated (PT) lumber, which has been used to construct relatively inexpensive pool decks for decades.

If your budget does not allow for redwood or cedar, pressure treated lumber, carefully chosen and protected with finishes or stains provide excellent surfaces for pool decks.

A little extra time spent sanding the face-up surface of such wood reduces the chance of splintering and splinters.

One of the best selections of treated woods for most outdoors projects is treated Southern Pine. Commonly used for decking purposes, Southern Pine is available in standard and premium grades. However, this type of wood needs to be cared for and requires a bit more maintenance than other types of wood.

As with Southern Pine, Douglas Fir choices are also economical, but will require yearly treatments of wood preservative and water repellent coatings. However, many homeowners who can't afford to use redwood or cedar or more exotic hardwoods for their deck building projects have successfully built and maintained a soft wood deck for years.

Synthetic Decking

Synthetic decking is growing in popularity around the country because of its reasonable pricing, ease of use and, of course, it is a good choice for those who wish to save a tree. Most synthetic decking is made of a variety of sources that combines plastics, vinyl and wood products.

Some synthetic decking looks like wood, while other types come in a variety of textures. Low maintenance is a key selling point to many types of this kind of decking.

In addition to synthetic decking, composite-decking choices are also gaining in popularity, as are vinyl decks. However, such decks look plastic, so if you are looking for something a little more realistic, wood is still your best choice.

Dealing with Joists, Posts and Beams

Pressure treated softwood lumbers are commonly used for construction components such as joists, posts and beams. Such woods include pine, hemlock, fir and larch. Pine is by far the most prevalent around the country.

Pine is perfectly suitable to use on both deck framing and support construction as well as deck surfaces and will last a long time if cared for and treated properly. This means coating with sealants and treatments that offer water resistant as well as weather coating protection. As a matter of fact, such woods can last up to 40 years or longer.

However, bear in mind that there are generally rules regarding the placement of beam span between posts and supports depending on the type of wood you choose. This goes for posts as well. The maximum length of posts allowed is also determined by wood species, its size, and their individual weight bearing load capacity.

Chapter 7:

Tools for the Job

Many DIY'ers hesitate to start home improvement projects because they figure they'll need thousands of dollars of equipment to complete any medium or large sized project. This isn't true. Of course, there are dozens of others that might be nice to add to a "wish list", but the tools listed in this chapter will suffice for this project.

Before going out and purchasing what can amount to thousands of dollars worth of equipment, borrow what you can from neighbors, friends or relatives whenever possible.

If you have a nice collection of tools before you even start your deck project, you may have to invest in only a few necessary tools, but you can also rent them from local rental supply stores as well. A word of warning: if you decide to rent from a tool rental supply outfit, ask for a demonstration of the tool you're interested in, even if you already know how to use it. There's nothing worse than getting home, ready to start a job, only to realize that the piece of equipment you just rented is damaged or broken.

If you decide to buy construction tools for most construction jobs, look for sales and use good judgment when comparing brands or capabilities.

Sure, that \$300 power drill looks nifty and has over 50 attachments, but you will likely need only two or three for your deck-building job. A \$40 drill will do the job you have in mind just as well as the more expensive one.

In addition, unless you are going into the construction business and will be using that drill day in and day out for months or even years, the less expensive drill will last you for the duration of your deck construction job, and perhaps for years to come, depending on how often you use it and take care of it.

On the other hand, don't buy the cheapest drill in the store if you can help it. If you're going with a well-known national brand like Craftsman, fine, but remember that you generally get what you pay for.

We'll address the main tools that are necessary to complete your deck-building project. Most tools can be rented if necessary, but again, ask neighbors, friends and other family members to borrow their tools first. Return them clean and in proper working order, and offer them first dibs from the grill after your new pool deck is finished.

We're going to split the pool deck construction job into sections, with the most commonly used tools needed for each stage of the building process. While you don't need every tool that we will mention, and can probably make do with less, if you've got them, great!

Don't forget to add work gloves and protective eyewear to your "must-have" supply list.

Emergency rooms deal with hundreds of patients a year who have injured themselves working on construction projects.

To reduce the chance of injury, use common sense when building. Always wear shoes, preferably those with thick soles and reinforced toes if possible. In addition, always pay attention when using power tools such as circular saws, nail guns and chisels. Save your fingers by focusing on your cuts; keep them out of the way of blades and never, ever rush.

Groundbreaking Tools

Excavating and creating foundation footings call for a shovel, and to make your life a little easier, a **posthole digger**. It doesn't matter if you're going to use concrete tubular forms or whether you pour concrete directly into the ground, a footing hole needs to be deep enough to securely anchor posts.

Digging a hole with a shovel will create a hole with sloping sides, which is okay, as long as you make sure your post is straight as you pour the concrete and it hardens.

A **wheelbarrow** is the handiest container in which to mix cement, but other products like large plastic buckets, tubs and even wooden boxes will suffice for your mixing needs. However, a wheelbarrow will come in handy as you work your deck site in order to transport cement bags and for disposing of sand, dirt and sod.

Rakes will come in handy as you clear the area for your deck. Whether you need to rake gravel, dirt, weeds or grass, metal-tined rakes will stand you in good stead.

Another tool you don't want to do without is a trowel for finishing your concrete work, especially if footings and slabs are going to show. Choose the correct trowel for your needs, as they are made for different purposes. If in doubt, ask a professional at your local hardware store for the best tool for your desired task.

So, if your budget is extremely tight, at least purchase a shovel, a couple of large buckets and a rake. You can always use them in the yard after the job is finished and they don't require a lot of storage space.

"Measure Twice, Cut Once"

When it comes time to measure anything, from where to place your footings to figuring how many inches between balusters, you're going to need several various and indispensable tools. If you need to save money, cut back on something else, but not your levels!

There are many types of levels, like a **carpenter's level**, which are two, four or even eight feet long. These types of levels are priceless when it comes to ensuring that your support posts and foundation footings are perfectly vertical and that your joists, girders and decking are perfectly horizontal. If possible, buy the four-foot level, as it is the perfect size for most construction jobs.

A level made out of steel or heavy aluminum is best, but take care of it and try not to drop it. Test the accuracy of the level before you buy it by placing it on a level spot on the floor, centering the bubble and then turning the level end to end, and then on each of its sides. The bubble should stay centered.

Other types of levels are **line** or **torpedo** levels. A torpedo level is pointed at each end and is nice to have for smaller spaces. Such a level can slide into a pocket or carpenter's belt or toolbox for easy storage.

A line level is a small bubble vial that hooks onto a tight string to test for horizontal. Such a level is not recommended for beginners, as it is essential that the string be pulled taut. Either you need someone else to hold one end or you have to tie it off. It's more inconvenient than either the carpenter or the torpedo level.

Post levels are designed to use on posts, and are strapped around the post. This type of level usually comes equipped with two bubble vials set at 90 degrees so that you can make sure the post is plumb (or level) both vertically and horizontally at the same time. While these are neat, they are not really necessary, as you can achieve the same results with a carpenter's level.

Another vital tool that you will need is a **measuring tape**. For most jobs, a 25 to 30 foot metal tape is adequate, though many carpenters like to use a **reel measuring tape**. This is usually made of plastic or metal, and sometimes even heavy fabric, and comes in 50 to 100 foot lengths. The typical measuring tape is adequate and simple to use. If you do need more length, mark your spots and move the tape.

Many professional builders swear by their chalk lines and strings. A **chalk-line box** is recommended over **mason's strings** for its ease of use and accuracy. The "chalk box" often looks like an oversized teardrop and is filled with chalk. (Use blue chalk, as it will last fairly long and won't leave permanent marks on your wood).

The chalk box contains thick string with a small metal piece attached to the end that can be used to hook onto wood or a small marker in the ground. The user will then back away to their desired point, pull the string taut and then 'snap' it down on the surface, leaving a straight blue line that can designate nail placement, cutting edges or boundaries for studs and framing. Chalk is purchased separately in the same location where you'll find the chalk line box at your local hardware store.

On the other hand, mason's strings need to be pulled very tight. Those who use mason's strings should purchase nylon cord for durability.

A **plumb bob** comes in real handy when it comes time to determine the exact location of framing posts. A plumb bob will drop a perfectly straight vertical line from any given point. A plumb bob is a heavier object that is attached to the end of a string. You may purchase one, or use the teardrop shaped chalk line box as a plumb bob, or you can make your own, using string. A small, tapered, bullet-like or arrow shaped bit of metal that tapers to a sharp point works best.

The next thing you will definitely need is some kind of a **square**. There are several kinds of squares, including T-squares, framing squares and angled squares, among a few others. If you can only afford to get one square, the T-square, aka T-Bevel Square, is a good bet.

Not only do you use this square to create straight cutting and measuring lines, you can also use it to create 45 and 90-degree angles. This square has a flat metal blade at one end that can be fitted to any board or plywood surface.

A framing square is shaped like an "L" and measures roughly 16 inches on one leg, and about 24 on the other. Like a T-square, it can be fitted against most flat surfaces to check for square or to mark for 45 or 90 degree cuts.

An angle square is shaped like a triangle and allows the user to measure for angle cuts. While it is extremely versatile, it is smaller than the T or framing square, so if you also want your square to double as a straight edge, go for the L or T square.

Of course, there are many other tools that might come in handy in any construction job, but these are the essentials.

Power Tools: Cutting and Sanding

Power tools such as circular saws intimidate many people. However, these tools can prove indispensable at any work site. If necessary, practice using tools that you aren't familiar with on scrap pieces of wood before you start the construction phase of the job, and practice safety rules when using any tools.

A **circular saw** with a 7-½ inch blade is adequate for most construction needs. This type of saw allows users to cut through 2x4s at both 90 and 45-degree angles at a depth of roughly 2 ½ inches. A good saw will carry a 12 or 13 amp rating and will last longer and make smoother cuts, so look at specs when buying new equipment.

In addition, make sure the base of the saw is made of steel or cast aluminum to protect it against accidental drops. A circular saw works best with carbide blades, which may cost a few dollars more, but will last much longer than cheaper blades, as well as providing cleaner cuts.

Remember that the blades with fewer teeth may cut faster, but they also produce rougher edges, so if you don't want to spend much of your time sanding cut edges for a smoother look, purchase blades with finer teeth. (Always purchase extra!)

A **miter saw** is a wonderful tool that can accomplish many different functions. When it comes time to cut larger pieces of wood besides 2x4s, the miter saw can do the trick. It will also provide cuts with a huge range of angles and measurements that will provide the most precise cuts.

Miter saws can be rented, but they are also a good investment for any do-it-yourself guru to make for a wide range of home improvement projects. Purchase or rent a miter saw that carries at least a 10-inch blade or larger.

Sanders come in handy as well. There are two kinds that can be used for your deck-building project, though you probably won't need both. A **belt sander** is good for working with long planks and smoothing edges, while a **pad sander** is good for smaller areas, as well as working on railings. However, regular sheets of sandpaper attached to a sanding block will serve their purpose just as well, so if you can only choose one, go for the belt sander.

When it comes to fasteners and other miscellaneous tools for your deck construction project, C-clamps in various sizes will come in handy. Of course, there are many more types of clamps, such as bar and pipe clamps, but these can get expensive. Take a look at your local hardware supply store and check prices on some of the different sizes and types before you buy.

Other tools such as hammers, a pry bar, an electric or cordless drill and nails are essential to finish the job. A nail gun can be used to save time, but unless you find the proper size air compressor to work the nail gun, you'll waste a lot of time waiting for it to build up pressure.

Compressors and hoses require a certain amount of moving around, so if you can deal with a traditional hammer and nails, do so. Safety is also an issue when using a nail gun, especially if you have small children around your working location.

To finish off your supplies, you might also want to purchase a utility knife, which comes in handy for any project, as well as a good extension cord and tool bag or belt.

Shopping for or renting tools for a deck construction job is fairly straightforward and simple, and many do-it-yourselfers already have a majority of the tools that are needed to complete most jobs.

Now that you have your list of tools and you know about lumber and decking plan designs, it's time to get to the nitty-gritty of your pool construction job; the actual building phase. So, are you ready? Let's build your pool deck!

Chapter 8:

Laying the Foundation

Necessary Items:

Shovel

Rake

Wheelbarrow or buckets

Landscape Fabric if desired

Pea gravel if desired

Many beginning builders are so anxious to start their projects that they rush through one of the most important phases of the actual construction process, measuring and laying out the foundation. Footings and substructures are generally not visible to the casual observer and many people pay less attention to this part, but it can't be overstressed that if you don't take the time to properly lay out your foundation and footings, you may set yourself up for problems later on into the project.

Before you even start to dig that first posthole, prepare a gravel bed, or at the very least, clear the ground beneath the proposed deck area to prevent weeds. Clear away any rocks and other debris, including grass and plant or tree roots. The last thing you need is a new tree growing under your new deck.

To eradicate weeds and prevent new growth, cover the area in landscaping plastic, overlapping edges about 6 inches.

Pour gravel onto the plastic and smooth out. Gravel beds can be from 1 to 3 inches thick, depending on your budget.

If you don't want to spend a weekend taking apart what you've done, be patient when measuring and planning footings. Always triple check your measurements, and if possible, two people should be involved in the process in order to check measurements.

Most people constructing an above ground pool deck opt for a freestanding, "wraparound" circular deck that surrounds the pool. We will use this scenario for the remainder of our construction process. There are a couple of different methods to build such a deck. One is to use what is called a "floating foundation", which merely requires the deck to be supported by concrete pier blocks set on the ground.

This type of foundation is not attached to a house or other structural building or framing. This type of construction is fine for proper soil conditions, but for areas where soil is not perfect, and for a more finished looking, beautiful and custom designed pool deck, in-ground footings will provide more stability.

Remember: Make sure that your footings and layout plans are up to standard building codes in your area.

An above ground pool deck is generally built in three different sections: the curved part of the deck that surrounds the pool, a railing, and perhaps a square or rectangular sunning or sitting area on the deck, if desired.

Materials and tools needed to complete a wraparound deck are listed below. Keep in mind that these are the most basic tools necessary, but if you have others, great.

Necessary Items:

Pieces of 1x4 lumber, called "batter boards"

*Saw * Hammer*

*Drill * Shovel*

*Measuring tape * Trowel*

*Plumb bob * Footing Forms (if used)*

*Layout string * 4x4 posts*

*Level * Cement mix*

*Water * Post anchors of your choice*

Determining Frame Post Location

Estimated Time Completion: 1-2 hours

A circular or wraparound pool deck needs to be supported by 4x4s right up to the edge of the pool rim. To determine the location of framing posts, you first have to find the pool's center. There are several methods to determine this, one of which is to place a narrow board (or boards) over the pool, with a nail placed dead center. A long piece of string needs to be attached to the nail.

Then, with the board anchored on the edges of the pool with C-clamps or other type of anchor, including bricks or other stable materials, extend the string 4 feet beyond the edge of the pool. That measurement will give you the outside edge of your post locations. If you want a six-foot wide deck, measure 6 feet beyond the edge of the pool and so forth. An inside post located on the side edge of the pool should line up with each outside posts.

These "post pairs" should be spaced an equal distance apart, and don't forget to leave room for stairs as you determine the post locations.

Tip: Remember that you need to mark centers, which means your measurements should always go from center to center – for example, from the center of your pool to the center of your support or frame post. (The center of a 4x4 is 1-¾ inches from each edge).

Marking Foundation Post Location

For each corner post, if you include a square or rectangular deck into your wraparound deck design, you'll need to establish outside deck corners. Corners must be square. In order to ensure this, measure the length and width of each side, as well as the diagonal measurements between opposite corners of your intended deck plan.

Then, using a plumb bob or chalk line box, mark the spot on the ground where the center of your post should be.

This will also serve to locate the center of your posthole. Write down measurements so that you can measure as you dig, as well as place your post, to make sure that everything still lines up properly.

Digging Postholes

Estimated Time Completion: 2-4 hours depending on soil conditions

Remember, there are different types of footings. Pre-cast piers are suitable for floating deck designs, but for additional stability, choose a hole-dug pier, a hole-dug pier with form, or a hole-dug tube form footing. Check with local building codes to determine if footings need to be reinforced with reinforcing bars (rebar).

For areas that receive little to no frost, a **hold-dug pier** posthole is typically dug about 12 inches in diameter and about 8 inches deep.

After the posthole has reached an adequate depth, tamp the dirt at the bottom of the hole with a 4x4 to pack down any loose dirt that has settled at the bottom. Recheck the posthole measurements after you have dug the number of postholes that are needed and make sure you're still square or in line with the others.

Footing Forms

If you're using cement forms, place the forms in the postholes. Check with a level to make sure they are straight and even, and then backfill with a little dirt to ensure they are solid as you pour the concrete into them. It's a good idea to place 2 to 3 inches of gravel into the bottom of each of the postholes to aid in drainage and stability.

If your building inspector requires reinforcement bars, measure, cut and then pound bars into the center of the posthole with a small sledgehammer. Make sure that they do not extend beyond the rim of the form or interfere with anchoring fasteners.

A **pre-cast pier** can be purchased from your local hardware supply store and set one or two inches deep and directly into the cement bed before it dries. A **tube form** is perhaps the most accurate way to pour cement for footings. Tubes come in a wide range of sizes and widths, though 8-inch widths are the most commonly used. Easy to trim to desired length, tube forms can be torn away from any exposed areas above ground to provide a neat, professional finish.

Anchoring hardware used on most posts range from pinned, to adjustable, to bracketed and pronged. Adjustable post hardware is a good choice, as it utilizes a slot rather than a hole that enables adjustment of one or two inches to the exact position where you want it, which helps to smooth very slight measuring mistakes.

In some cases, a post can be set directly into the concrete form. These are called **continuous posts**. However, the most durable type of design sets the posts in hardware on top of concrete piers.

Setting a post directly into a concrete form is suitable for stairway railings. In earthquake-prone areas, continuous posts may be required. In addition, these types of posts are ideal for freestanding decks that are more than a couple of feet off the ground.

Mixing and Pouring Concrete

Estimated Time Completion: 30 minutes per post

Cement Drying Time: 24 hours

If you haven't mixed cement before, go slow. The easiest way to mix a bag of cement is in a wheelbarrow or plastic tub. Empty the bag of cement mix into the container. Make a small well or crater in the middle of the mix and then add water. Use a trowel or hoe to start blending, adding water as necessary to reach a suitable consistency.

Too little water and your batch of cement will be thick and more prone to cracking as it dries. Too wet and it will be too runny, and will take forever to set up. Work the cement until it is rather like the consistency of a thick pancake batter.

If you make the cement too wet on your first try, let the cement sit a while, and it will "set up" or thicken gradually. You should be able to pour cement into the cement forms in a thick, batter-like consistency.

Fill with cement so that the dried block of cement will extend an inch or two above ground level.

This will keep your posts dry in most types of weather. Before the cement dries, insert a J- bolt or anchor directly into the middle of the concrete with which to anchor your posts.

You know you have the consistency right when the anchor plates or bolts don't sink down into the cement without a little extra help from you. Use a level to make sure your anchor hardware or J-bolts are level.

Tip: Make sure you don't leave air bubbles in your cement forms. Using any long, thin object, poke it up and down inside the form to eradicate any bubbles, and then level off cement with a piece of 2x4 to obtain a smooth form surface.

Cover cement footings with plastic to prevent them from drying too quickly. If it's very hot outside, give them a little squirt of spray from the hose in order to keep it moistened. Drying too quickly promotes cracking.

Depending on your weather, it usually takes 24 hours for cement to dry. While you may start to build, it may take up to three weeks for the cement to cure. To be on the safe side and to prevent chipping or cracking while building, wait at least three days to start working on the framing.

Installing Posts for Deck Frame

Estimated Time Completion: 30-45 minutes per post

One method of post setting is to set posts into wet cement and make sure that all sides and the top are level. However, for most decking projects, you will need to anchor posts into the cement foundation forms.

To do this, anchor the desired type of anchor fastening assembly to the cement footing, either by setting into wet cement or bolting into place. Make sure the bottoms of your posts are square and then set the post into the anchor. The adjustable anchor post assembly will allow some give and take in positioning the post. Drive nails or screws through the metal anchor bracket into the 4x4 post, checking constantly to make sure post is plumb.

Trim off posts after the concrete has dried. Sink your posts first, and then trim to size later, as all of your postholes may not be the exact same depth. Attach braces to both sides of the post to secure and then pour cement into the hole.

While drying, check every once in a while before the cement gets too hard to make any adjustments in level. Release any trapped air bubbles in the cement by poking with a piece of rebar or other object, especially if a post is inserted into a footing form.

Tip: While cement is drying, use a trowel to form a slope from the top of the concrete upward, so that rainwater will naturally drain away from the wood and not puddle up at its base.

As soon as your cement forms are dry and your posts have all been checked for plumb, or level, it's time to begin the next phase. This is the most exciting part of the deck-building project, in which you will actually begin to see the deck take form and shape.

While enthusiasm at this stage is great, try not to feel rushed. Now, you're ready to start framing your deck and will soon reach the decking phase!

Chapter 9:

Constructing Your Deck

Remember that no matter what design you choose for an above ground pool deck, the same construction rules apply. That means that the decking is supported by joists, which are in turn supported by girders, which are in turn supported by posts anchored into the ground using cement forms or footings.

The most common design for an above ground pool deck is the "wraparound" design, which basically circles the pool and offers 4 to 6 feet of walking and lounging space around the pool.

Many people like to add a rectangular or square sunning or lounging area to the deck design, but unless a homeowner has a lot of yard space, this may be unpractical for your needs.

Be aware that if you want to build a patio deck or a deck that connects to your house or other structure in the yard, or one that contains more than one level, the construction design, support structure and framing needs will be different and a bit more complicated than the relatively simple wrap-around pool deck that we are describing here.

For example, when building a large deck against a house, DIY'ers must use ledgers and header support joists, as well as additional girders or beams in the framing construction phase of a deck building process.

The size of such a deck, as well as weight load considerations will need to be addressed during planning stages. Overhang issues will need to be adequately addressed, especially when building on a slope.

However, for the purposes of explaining the next phase of our wrap-around pool deck project, the actual construction of the decking, we will use the sample of a "floating" deck pattern.

The floating deck design merely means that the deck is not attached to the house or other support objects. This design, which offers the easiest and most "user-friendly" construction design for beginners, is based on trapezoidal sections. Building these sections will require specific measurements depending on the size of your projected decking width.

For the floating deck, a deck project designer can use either pre-formed concrete footings or sink posts into the ground. Either way is fine, but make sure that you follow building codes or specifications for your area.

Before calculating the number of posts needed for the deck project, you need to decide what kind of wood you're going to use. As mentioned earlier, different types of wood require different spacing or support requirements.

The size of support girders (aka "beams") also needs to be taken into consideration. For the sake of example, let's use Douglas fir, as it is generally available throughout the country.

The easiest way to determine such numbers (if you're not particularly gifted in math) is to refer to a beam-sizing chart. Following is an example of the maximum beam spans between supports or posts using Douglas fir or Southern Yellow pine for our construction materials. Other types of wood will require different specifications.

Joist Length Support

Beam Size		4	5	6	8	10	12
3x8		9	8	7	6	6	6
4x6		6	6	6			
4x8		10	9	8	7	6	6
3x10		11	10	9	8	7	7
4x12				12	11	10	9

Maximum post spacing and spans calculate joist size. This insures that the weight of the deck is distributed over multiple beams and support posts.

For example, a 4x8 beam, or girder, will provide adequate support for up to 8-foot joist lengths, which in turn, may be placed up to 6 feet apart. Always check with your local building department for support framing guidelines.

Once the posts have been cut and attached to their foundations, it's time to cut the beams, or girders. There are several different methods used by professionals to attach girders to support posts.

Girders used in the construction of a wraparound deck are smaller than most, and therefore are very easy to work with. Many girders for larger deck projects can be over 16 to 20 feet long and are very heavy, requiring the help of one or two additional people during this part of the construction process.

However, with a wraparound deck design, the beams are often placed right on top of the posts.

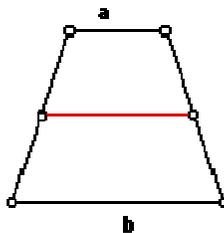
The Trapezoid Design

Estimated Time Completion: Each trapezoid section: 1-1 ½ hours

We will explain two different methods of building the support structure for a wraparound pool deck. The first is very simple, and will provide the foundation for a wraparound deck with no additional decking area.

Because the post measures 4x4, you will be able to place two 2x4s or 2x6s directly on top of the post for support. Remember, the size of the pool and the desired width of a deck must be taken into consideration, but the basic design used here will apply to all sizes, with only different lengths employed in the construction.

When building a trapezoidal joist support framing system, accurate measurements are necessary. If you don't remember what a trapezoid is from your basic geometry class years ago, look it up. The design will call for two equal sides. The 'top' of the trapezoid will be a little shorter than the 'bottom' side of the trapezoid.



Because of the shape of this type of framing, the edges of the wood used for the top and bottom and the middle of each trapezoid joist section piece must be cut at an angle, usually between 7.5 to 10 degrees. This is where a miter saw comes in *very* handy. The ends of the two sides will require a square, 90-degree angle cut.

Don't be alarmed by the talk of degrees and angles. A few practice cuts will do well enough to get the hang of it. Looking at the example of the trapezoid above, you can envision each section fitting around the outside perimeter of the above ground pool. The small end of each trapezoid will fit up close to the rim of the pool, the wider edges serving as the outside perimeter of the decking.

Build the outside framing for each trapezoid joist section first, and then insert the centerpiece with screws in the middle. Make sure to "square" the frame before driving screws or nails completely in. To do this, measure from opposite corners. Measurements should be equal. Repeat this process for the correct number of sections that the pool size requires.

Tip: Most building codes don't allow more than 16 inches between spans, so make sure that if your trapezoids are large, that you incorporate more than one "center" support for each one.

Attach a metal corner bracket to each outside corner of the supporting trapezoid frame sections. That means the corners of the top and bottom pieces of the trapezoid – 4 in all.

These brackets don't go on the outside of the frame, but the inside. Then, attach a joist hanger on each side of the inside center supports – 2 in all. Joist hangers and brackets can be installed using joist hanger nails or screws.

Tip: Brackets and joist hangers should be crafted with galvanized steel, which won't rust.

Place the trapezoid joist sections one at a time on posts, centering each section over 4 posts. Check to make sure that each section is level before attaching to posts with 2 ½ screws. In this manner, create and install the remaining framing sections around the pool area.

Depending on the size and shape of the pool, which is not always perfectly round, the measurements of the last trapezoid may need to be adjusted to fit.

Bracing the Deck

Estimated Time Completion: 30 minutes – 1 hour per section

Now that the framing sections are installed and secured, bracing is necessary in order to ensure adequate support and strength to the joist sections. Such lateral support will keep the deck from swaying.

As with any other part of the deck construction process, there may be certain guidelines in your building code requirements that deal with supports. In most cases, 2x4 lengths with mitered angles are common and need to be attached to at least every other *post pair*, in addition to the outside perimeter of the decking posts.

Installing Decking

Now to the good part – installing the decking surface. Again, depending on the desired width of the decking, lengths of 2x6 decking boards need to be cut into various lengths as you proceed. Exact length measurements are not necessary, as you can trim off edges as you proceed. Better to make the lengths too long rather than too short.

Start laying boards along one side of each trapezoid section at a time. Align the first decking board with the edge of a support frame, where the two sections of trapezoid framing sections meet.

Attach the decking boards with two 2-½ inch screws over each framing board: top, center and bottom. When finished, snap a chalk line from the outside edge of each trapezoid section to create a straight line from corner to corner and use a circular saw to trim edges.

Installing decking properly is the most important aspect of finishing your deck project. Decking boards must be spaced slightly apart from each other to allow for swelling and shrinkage due to weather changes, as well as to allow water to drain from the deck surface. In most cases, a large nail is adequate as a spacer.

Drive a large 3 to 4 inch nail into a scrap of plywood or other wood, and insert between each board before fastening with galvanized nails or screws to provide equal spacing all around the project surface.

Tip: Drive nails an inch from each edge to provide equal spacing around the surface of the deck for a professional look.

In addition, take the time to drive screws or nails the entire way around the project, with equal spacing in between boards. Carefully choosing the best looking boards for your decking, as well as choosing the best side of each board, will pay off in the long run

Remember, for a simple design wraparound deck, you may not need girders to support the joists, or beams. However, for larger decks, girders are needed to help provide strength and to distribute weight caused by hot tubs or heavy potted plants.

The trapezoid design is the easiest to work with around a circular pool. A good thing to know is that 4x4 posts are adequate for deck heights of 6 feet or less above the ground. However, to be on the safe side, always check with your local building code expert before making assumptions.

You will need to trim boards as you go, as the angle of the trapezoid will cause board length to shorten as you move from one side of the section to the other. Repeat the process until all sections are covered.

Note: Before laying the decking, take into consideration the railing system you have chosen for your deck project. Most decking projects allow builders to install railings and stairs after the deck has been built, but always read plans carefully, especially if you have purchased store-bought plans for your deck design.

Tip: If you plan on installing fascia boards or skirting panels around the deck, you may also need to plan the railing structure in advance, just to make certain that everything will fit together before you actually install the decking.

Tip: To make things easier on yourself, you may opt to install railing posts before the decking boards are fastened to the joists. In many cases, many contractors use longer framing support beams to also serve as railing posts.

Or, you may wish to install railing posts separately, before installing the decking boards. The length for each railing post will be relevant to the total of the joist width plus the deck thickness in addition to the desired railing height. Don't forget to leave enough space for a post cap for a decorative finishing touch.

When installing the decking, simply notch the decking boards to fit around the railing post. This is the best way to ensure both strength and integrity in railing posts. While it may be easier, and faster, to be tempted to notch the railing post and then fasten it to the outside of the deck joist instead, the first method provides more strength and stability.

Tip: Leave a ¼ inch space between railing and deck boards to allow for drainage as well as "breathing room" for boards during hot or cold seasons, as well as to adjust for boards to soak up water or as they dry out.

Installing Handrails

Estimated Time Completion: Allow 1-2 hours for each railing section

Railings are also subject to certain code requirements, so before you even start to construct the railing to surround your pool deck, check to make sure your design is in compliance with local building codes. In certain areas, restrictions on how high railings must be in comparison to the height of the deck, as well as the spacing between railing posts and balusters, if used, may limit your choices.

Railings add an extremely focal and finished touch to any deck, and choosing the right kind of railing that will fit with your deck style and design is important for the overall finished look of the pool deck area. Most railings are designed with wood, but there are other options available, including pipe, wrought iron and even plastic components.

A traditional railing design will contain the basic components of vertical posts, top and bottom rails and vertical balusters spaced equally between the top and bottom rails for safety, stability and strength. Keep in mind when designing railings that spacing and size of posts, rails and balusters can change the overall look of the entire railing, so experiment with sizes and choices before you decide.

There are many different kinds of post and railing options, including flush mount, in which the railing post is attached directly against the side (or front) of the outside deck joist, as well as double corner and single corner railings.

The double corner railing utilizes a railing on each side of a corner, while a single corner railing fits around the outside of a corner.

In some areas, spacing between balusters cannot be more than 4 to 6 inches, which will have an impact on where the posts are placed. There are also height requirements for the space between the top and bottom of railings, in addition to the amount of space between the bottom rail and the deck in many municipalities.

A common railing is typically 36 inches in height. Structural support is generally provided by long deck support posts that extend through the deck floor or that are bolted to the inside of the rim, or outer joists.

Many do-it-yourself books and instructions suggest that railing posts be "notched" to fit against the outside of the deck surface and the deck surface, but this will only serve to weaken the posts and railing system and may not be allowed in various locations. In addition, most regulations won't allow more than 6 feet between railing posts.

Tip: To make things easier on yourself, you may opt to install railing posts before the decking boards are fastened to the joists.

Railing posts should be bolted to the inside of joists using galvanized carriage bolts, usually 6 inches in length. Choose at least ½ inch bolts for this task.

Balusters

Estimated Time Completion: Allow 1-2 hours for each railing section

If balusters are bolted directly into the rim joist of the deck, a bottom rail might not be necessary, nor may posts be required. Do yourself a favor and check on such rules and restrictions before you design the railing to finish the deck.

Posts are used to connect the railing to the deck and must be fastened correctly in order to provide strength and safety. Deck posts are generally either 4x4 or 6x6 in size, but for most above ground floating pool decks, 4x4s are usually adequate. Posts are most commonly attached to the outside of the rim joist, or the outside frame portion of the pool-decking frame.

The posts must be mounted before any other part of the railing system is installed. This is easily accomplished by marking the location of the posts directly on top of the decking surface. Corners should be marked first. Then, determine how many posts in between corners are necessary, depending on local building requirements.

Trim the posts to the desired height. Then, measure the distance between the posts to determine the railing lengths.

Railing sections can be built separately (called "ladder-style") and then attached to the railing posts, or added between both bottom and top railings that have been installed and fastened into place using carriage bolts inserted into pre-drilled holes in both railing posts and top and bottom railings. The easiest method is to construct the baluster sections separately and then inserting between railing posts.

Balusters should be measured and spaced evenly. To mark the position of the first baluster, determine the midpoint of the railing length between posts. This mark will serve as either the center of the first baluster or the middle of the space between balusters. Spacing should be equidistant until posts are reached. Here, the space between the post and the last baluster on either end should be no more than 4 inches wide.

Tip: Use a piece of 2x4 to serve as a spacer between balusters. Also, use 3-inch screws to attach balusters to top and bottom rails.

Attach the balusters to the bottom railing first, and then turn the section over and attach the top railing, making sure that balusters are evenly spaced and aligned.

Remember that most codes specify that spacing between balusters be no more than 4 inches wide.

A baluster should be able to withstand a 200-pound force "applied outward" within a square foot section.

Tip: To make the job of assembling the balusters faster and easier, pre-drill holes by stacking top and bottom railing one on top of each other and drilling for screws to attach balusters at both top and bottom of railings.

Railing Caps

Estimated Time Completion: 1 hour per section

Most railings also need to be capped, or well sanded to provide a smooth, rounded surface to reduce the chance of splinters. If desired, place a cap rail over the railing assembly. If you don't want post caps, trim railing posts to level of top railing and mount with 5/4-inch cap railing all the way around, mitering corners as necessary and then finishing off with a good sanding. Round edges with a router if desired.

Installing Stairs or Ramps

Stairs provide a transition between the yard level and the deck top surface and are necessary for most aboveground pool designs.

Now that you've finished the deck, it's time to install stairs, which is, to many do-it-yourselfers, perhaps the most intimidating aspect of the entire deck project. However, building stairs is fairly straightforward and does not require the builder to be an expert.

The basic components of stairs consist of the **stringer**, which is the angled piece along each side of the stairs. The stringer holds the steps, called **treads**. Some stairs also contain **risers**, which cover the space between the treads.

For pool deck stairs, risers are seldom needed, or wanted, and don't affect the overall strength of the stairs.

Most stairs are roughly 36 inches wide and can be constructed with two stringers, one on each side. Check with the building codes in your area for the recommendations for tread depth and rise. In most cases, steps cannot be more than 10 inches deep and no more than 8 inches high, with a stairway of at least 3 feet in width. Again, save yourself time and effort and check before you build.

Designing Stairs

Measure treads, or steps, to between 4 and 7 ½ inches deep. A rise can measure between 4 inches 8 inches. Professional carpenters sometimes opt to design stair treads to also double as seating by placing (3) 2x6's together, with a space for drainage in between, for treads that measure almost 16 inches in depth. However, this may also add additional design considerations that may require additional stringers.

A general rule of thumb formula to figure out a stair pattern follows:

$$\text{Rise x run} = 70 \text{ to } 75 \text{ inches}$$

Or

$$\text{Rise} + \text{run} = 17 \text{ to } 20 \text{ inches.}$$

Rise is the distance between ground level and the deck surface, or the measurement of step height from tread to tread. **Run** is the distance from the front of the stairs to the deck, or the depth of each tread.

Be prepared to experiment with ratios of run and rise to find a design that will be code-approved, safe and comfortable. To find the total rise of your proposed stairs, measure the distance from the top of the pool deck to where the steps will end.

To determine the number of steps you need, divide the total rise by the individual unit (or step) rise that you desire. Remember that one of the steps will be the actual deck surface (for the last step), so you'll have to subtract that one for your equation answer.

For example, if you want a run of 11 inches and a rise of 7 ½ inches, and your pool deck is 36 inches off the ground, here is your equation:

$$36 \text{ divided by } 7 \frac{1}{2} = 4.8$$

Round up
You will need 5 steps

One of those steps is the deck surface itself, remember, so you actually need 4 steps. Therefore, because you are wanting the depth of your steps to equal 11 inches:

$$11 \times 4 = 44$$

Now, you know that you need to place the end of the stringer 44 inches from the pool deck.

Landing Pads

Estimated Time Completion: Allow 1-2 hours for form frame construction and mixing and pouring cement. Allow 24 hours drying time for landing pad before continuing.

Stairs and stringers must have something solid beneath them to support their weight and to make sure stability is maintained over the years. **Landing pads** can be designed using concrete, gravel, brick or any other hard surface.

Again, check with local building codes, for even this small detail may need to be created following certain specifications.

In some cases, a homeowner may prefer to create a larger landing pad beneath the stairs, for various reasons. In this case, frame the square or rectangle, making sure that the landing pad is a couple of inches larger on all sides than the ends of the stringers.

The best way to attach the bottom of the stringer to the landing pad is with a bracket. However, anchored cleats are also suitable. Check with the building code specifications before you complete this part of the project and have whichever method you choose approved before you start.

Concrete is the strongest and most durable type of landing pad. This area may also be small, with a pad merely large enough to support the bottom end of the stringers.

Determine where the bottom of the stairs will be located and then dig an area that will allow at least 3 inches of gravel and 3 inches of concrete as a base for each stringer.

You can create a wood form for the concrete, and then remove after concrete has set. Pour concrete as you did for your foundation footing forms, and then level off. Finish with a trowel or smooth with the side of a 2x4.

Tip: For a non-slip surface, lightly brush a whiskbroom or brush over the still-damp surface of the landing pad.

Stringers

Estimated Time Completion: Allow 5-6 hours to cut and attach stringers to pool deck frame.

The most important thing to remember when designing and building stairs is to make sure measurements between steps is equal. Using fewer treads means a sharper rise, and therefore shorter staircase, while more treads, or steps, makes for a longer staircase.

To make stringers, it's best to use 2x12 pieces of lumber. If you plan on making steps that are more than 36 inches wide, you'll need an additional stringer, called a **carriage** in the center of your staircase.

A **notched stringer** is the most commonly used type of stringer and is cut on each side so that the steps, or treads, have a place to "sit". Basically, it is cut out of the stringer boards using a saw tooth pattern, which can be easily cut using a skill saw and or a jigsaw blade. To mark cut lines for stringers, a framing square is used to determine the rise of the run on the stringer.

For beginners, or for someone who hasn't cut stringers before, using a pre-designed stringer template available at your local hardware or building supply store will make the job a lot easier.

A **solid stringer** employs the use of tread brackets, or what can almost be called metal ledges upon which the steps, or tread, can be fastened. While this design is similar to the one used in a notched stringer, using equally spaced steps and alignment of runs and rise, it does not require the builder to cut out any notches in the stringer.

Tip: Mistakes are easy to fix by merely realigning the metal brace, or cleat. The best type of cleats to use is L-shaped galvanized metal brackets.

Attaching the top of the stinger to the main pool deck will be determined upon the upper tread, or step. If the top tread is even with the decking, a vertical cut at the top of the stringer will allow the stringers to butt up against the main outside deck joist. Actually, the joist of the deck can also serve as the top step of the stairway.

The stringer should be attached to the deck with lag bolts or screws driven through both the rim joist into the vertical cut of the stringer. Measure for accuracy so that both stringers are solid and there is no "rock" in the stairway.

Treads, or steps, can be created using simple 2x4s or 2x6 boards. Rounding edges with a router provides a nice, smooth finish. Anchor treads using galvanized nails or screws.

Constructing Benches

The number and design styles of benches are limitless to imagination and creativity. Many benches are built into the deck surface, while many others are merely bolted down. However, no matter what type of bench you use on a pool deck, an eye for design will both enhance the deck and create a place for relaxation and entertainment.

Some benches are built with a back section for support. If you design or purchase such a bench, make sure the back of the bench slopes gently back for greater comfort.

The greatest majority of deck benches, however, are called backless benches. To build a bench into the deck, install T-shaped supports made from 4x4 uprights and 2x8 crosspieces in the desired bench location before laying the deck. The supports need to be bolted onto a joist or support post. This is called a **seat on framing** design.

Supports for benching should be located every 4 feet. These supports will allow boards or planks to be fitted onto them after the decking has been installed, and is perhaps the easiest type of bench to build.

Store bought benches are even easier! Wrought iron is most popular around pools, but make sure that if benches are heavy, additional bracing is installed beneath the deck surface to provide strength and support.

Ramps

Ramps allow easier deck access to an above ground swimming pool or deck for people who find it difficult to navigate steps. Keep in mind that codes regarding ramps are just as stringent as any other part of the deck design.

Railings are required on both sides of a ramp when that ramp rises more than 6 inches or is longer than 6 feet. In addition, a ramp should not have a slope steeper than 1 in 12. A 1 in 15 pitch is generally considered adequate in most situations, while many professional contractors design ramps with a 1 in 6 slope.

Ramps need to be at least 4 feet in width to accommodate wheelchairs without getting too close to the edges. If possible, build ramps at least 5 feet wide for greater security and peace of mind.

To build a ramp, a ramp joist needs to be hung off the main deck with a joist hanger. A landing pad needs to be constructed, as with stringers for stairs. A ramp can be a permanent or temporary fixture on the deck, and if designed to be removable, contains a separate rim joist which can be set in place and bolted to the main decking with ½ inch diameter bolts.

Created much like a no-notched stringer, the sides of the ramp can be designed using 2x8 joists and nailed together into a frame structure much like that used for creating stairs. Boards are nailed to the frame, as with the decking, and then trimmed off the side edges if necessary.

Permanent ramps can be bolted into the main rim joist of the deck and slope downward, where they are attached to the landing pad with metal anchors or set on compacted gravel.

Now, you should have only a few finishing touches to add to your deck before you're ready to entertain on it. You still need to finish and seal the surface of the deck, as well as add decorations, if desired. Still, for all intents and purposes, your deck is finished. Now it's time to admire your work and take pride in a job well done.

Chapter 10:

Finishing and Maintaining Your Deck

Now that you've finished the construction phase of your deck project, it's time to make sure your time spent in building efforts lasts. To ensure that your new deck remains in good condition and can be used for years to come, both regular maintenance and care need to be addressed.

Make sure the entire surface of the decking has been sanded and smoothed to a finish that won't cause splinters on small feet or hands. Patience is required for this process, which can be accomplished with a pad sander using fine grit sandpaper for a smoother finish. Your extra effort will pay off in a big way.

Applying a surface finish to your deck will help prevent it from damage caused by rain, sun, moisture and even insects. In most areas, coating the deck surface with a clear sealer containing a UV inhibitor will keep your deck looking new for years.

Fading is natural and can't be prevented entirely, but sealing every so often will help to keep wood from graying. Of course, many people like the gray, weathered look.

Sunshine will eventually cause a breakdown of wood cells, but only to a point. Cycles of wet and dry conditions will cause some splintering and cracking of wood, but a sealant will help prevent such damage.

Moisture can also harm the decking in several different ways:

- Constant expansion and contraction of wood leads to warping and cracking and may even cause nails to come loose.
- Constant moisture creates mold, mildew and bacterial fungus that lead to rot.
- Wood that never dries is prone to develop wet rot, which looked like blackened, charred wood.

Keep the deck surface clean and free of debris caused by weather changes. Insects may cause damage if you have not used treated lumber for your deck construction project. However, redwood and cedar are especially resistant to many types of decay, including the damage caused by wood-loving insects.

Several different coatings are available at your local home center, and will address different issues.

- Preservatives – Protect from fungus, mildew and insects.
- UV Inhibitors – Protection from UV rays.
- Water Repellents – Coat the wood and prevents damage caused by rain and exposure to chlorinated pool water.
- Resins – This is a more expensive version of a water repellent. This lasts longer and adds a slight sheen to the wood.

To apply a sealer, liberally coat all exposed wood surfaces with a long-handled paint roller or paintbrush. Brush or roll with the grain of the wood to provide a nicer finish, but make sure to use plenty in order to provide the most protection. Raw wood will soak up the first coat of sealer rather quickly. Allow a day to dry, and then brush on another coat.

A clear finish contains both a water repellent and a preservative. While you won't see this product on the surface of your deck after application, it will help your deck last longer.

Tip: Always test the appearance of any finish, stain or paint on a spare scrap of wood so that you can see what it will look like before you apply it to the entire deck surface.

A **semi-transparent** stain will allow the grain to show, but will add some color tone and depth to the decking surface. Such stains come in both oil and water based choices. While water-based are easier to clean up, they won't last as long as an oil-based stain.

If the semi-transparent stain you have chosen contains resin, it will add a slight sheen to the surface of your deck, which many homeowners find extremely attractive.

A **solid-body stain** and **paint** look very similar on wood products. These types of coatings will show eventual wear and tear caused by foot traffic around your deck. If you want to produce a darker look to your deck, choose a "porch and deck" stain. However, be advised that peeling is fairly common when wet, so make sure to spot cracks early and recoat.

To apply any kind of finish or sealer, make sure the temperature is over 40 degrees. If, by chance, you started building late in the year and will not be able to finish the deck building project until spring, coat any exposed mildewed surfaces of wood with a solution of 1 part common bleach and 2 to 3 parts water before finishing and sealing the deck.

Every spring, take a good look at your decking and check for damage or loose nails. Replace nails or screws if necessary.

If a board has twisted enough to cause a potential tripping hazard, either replace the board or plane it down. In most cases, planing the board is a more reasonable remedy to such a problem. If you don't have a plane, you can use a belt sander with very coarse grit sandpaper to sand down the offending area.

Depending on your area, you may need to stain and seal on a yearly basis, or every other year at least.

Check for standing puddles of water and determine the reason. You should have laid your boards with a slight gap in between to facilitate drainage, but if boards have swollen, you may need to increase the gap in areas. To do so, you can use a common hacksaw or circular saw, or clean clogged gaps from dirt and debris using a putty knife or other sharp object.

If some boards have 'cupped' and trap water, you may have to pry them up and replace them. For minor cupping, try removing the nails, flipping the board over and then refasten with new nails or screws.

To repair damaged wood or edges, trim about ½ inch from the ends of the boards and reseal with stain or finish. If desired, you can place 2x2s along the top and side edge of pool deck edging to provide even more protection.

Regular maintenance is vital for the long-term health of your deck. Don't allow potential problems to go unresolved. Take the time to seal deck surfaces on a regular basis and sand when necessary to maintain a smooth deck surface.

Chapter 11:

Decorate Your Deck!

Building a deck can be one of the most rewarding projects that any do-it-yourselfer can take on. A job well done will last for years of outdoor enjoyment and provide you with a great sense of accomplishment, as well as having saved you thousands of dollars.

If desired, decorate your pool deck with potted plants, benches or chairs depending on your needs and tastes. Empty decks are as attractive as decks designed with benches and plant boxes and containers.

When adding items to your deck however, make sure that the deck framing has been designed to bear the extra weight, especially if potted plants or trees are extremely heavy.

Many boating supply stores will offer great ideas on how to decorate your new deck with pillows, cushions and decorations that will add personality as well as a unique look to your creation.

Whether you decorate your new deck with an arrangement of plants and flowers or leave it open for entertaining or for private use, you now have a great focal point on your property that will last for years, or decades, if properly taken care of and maintained. If you want to clean your pool yourself, feel free, but finding a good "pool man" will also provide you with lots of ideas of how to maintain and keep up both pool and deck conditions that should not be overlooked.

Pool guys and gals see hundreds of pools on a weekly basis and are a font of information on both care and aesthetic suggestions.

Pool and spa magazines offer a wealth of possibilities when it comes to enjoying and decorating your own pool deck, and imagination is the only limit to what you can accomplish. After all, you've built the deck, now take your newfound confidence a step further and leave your personal impression on it.

Want to create a theme for your deck, or even your entire backyard? Go tropical with dry grass accessories, Tiki poles and even carved wood pieces of island gods or natives. Or consider the pirate look with a pirate flag and perhaps some accessories found at your local boat reclamation yard. Hoist the Jolly Roger on the side of the deck or tie seashells and other bits of booty along railings to delight kids of all ages.

Change the theme of your deck every once in a while to keep things exciting and fun. Never grow bored with your deck, and never let other people dampen your sense of enjoyment with decorating. After all, it's *your* deck, so do with it what you will!

Enjoy your dream deck, as well as the automatically increased value to your home and property. In many cases, building a pool deck to enhance an above ground pool is very inexpensive after the increase of value to a home has been established.

No matter what the reason for building your deck in the first place, enjoy it, use it and play on your deck for years to come. You did a great job and you can take pride in the fact that you not only tackled the job, but that you finished it as well, even if you needed a little extra help along the way.



Chapter 12:

Pool Deck Repair

Earlier in this eBook we showed you how to finish your above ground pool deck and included some tips on how to care for your decking. That information by itself will do a lot to help you make the deck as durable as possible. However, wear and tear from constant use over the years is unavoidable.

In general, you want to check for damaged or cracked wood or loose fasteners at least once per year. Be sure to check your joists and beams too. Check for rot, especially under the deck and the bottom of posts. You can do this by poking the wood with something like a screwdriver and if the screwdriver slips too easily, it's very possible that you have rot.

Cleaning Your Deck

1. Sweep your deck at least once each week.
2. Scrub the deck with warm water and a mild detergent once each month.
3. Consider buying a deck cleaning product if regular washing is ineffective.
4. If you want to clean out all of the dirt and debris in one shot then consider using a power washer. Be sure to follow the safety instructions and use a fan tip to avoid wood damage.
5. If cleaning the deck isn't appealing to you, then consider hiring a professional deck cleaning crew.

Insects

It will be difficult to see any insect damage until it's too late because wood-eating insects, like termites or carpenter ants, eat in darkness.

You can check for insect damage by tapping on lumber and if you hear a hollow sound you likely have insect damage. Also, if you notice small holes that look like they've been drilled along the grain this is another indication of termites or carpenter ants. Be sure to also look at any lumber near the ground such as your posts.

If you have wood damaged from insects you might be able to patch the wood with exterior-grade wood putty. If damage is too severe for wood putty, replace the damaged decking using the steps discussed earlier in this eBook. Then hire a local exterminator.

You can avoid insect infestation by taking measures to prevent it. Use a sealer or preservative that will repel them.

Rot

If you see black and squishy rot you have what is called wet rot. Dry rot will have a lighter color than wet rot, but is also very spongy. Take every precaution to avoid rot.

You can avoid rot by making sure the wood dries out or by painting your deck completely. You want to sweep your deck every week as this makes sure enough air and sunlight are getting to the wood.

If the rot looks small and is not destabilizing any structure of your deck, you might be able to fix it with an epoxy hardener. Most of the time, wood infected with rot will require replacement especially if it's a beam, joist, or post. Use pressure-treated lumber for replacement wood.

Algae

If you see algae or moss do the following steps to remove it:

1. Mix one ounce of laundry soap, three ounces of trisodium phosphate (TSP) or a nonphosphate TSP alternative, one quart of chlorine bleach, and three quarts of water.
2. Brush it on affected area.
3. Wait five minutes.
4. Rinse.

Wear rubber gloves and goggles when handling TSP.

Mildew

If you see a greasy black surface then you probably have mildew. Mildew is unlikely to cause any structural problems to your deck but it smells and looks bad. Clean the affected spot with a bleach solution and try to figure out ways to enhance airing. Use bleach solutions on cloudy days and rinse completely to avoid staining.

Railings

Railings, and stairs, are used more than anything on your deck and will require the most attention.

Repairing railings can be tricky because the fasteners are usually difficult to view. If your railings need any repairing it will typically be a post or a loose baluster.

Most posts can be reinforced simply by tightening the existing fasteners.

If your baluster is too easily moved or twisted by hand it will need to be reinforced or replaced. If it needs to be replaced, try looking for a baluster that matches the others at your local home improvement center or consider hiring a local woodworker.

Stairs

Your deck stairs will get used a lot so they will require special attention and probably some repair along the way. A simple way to test the condition of your deck stairs is to walk on them and watch how the stairs flex. If they flex in a visibly obvious way, you should address the issue immediately.

If the deck stairs are just squeaky, that is usually okay. But a step that is loose can be dangerous (remember your local building codes and attractive nuisance rules).

Loose treads mean that a stringer may be damaged or that it slipped outward, which means it won't support the tread evenly. In order to fix this problem you'll have to go under the stairs and if that area is covered then remove a couple of treads and risers to get to it.

If you need to replace a tread or riser you'll need to be very careful so you don't damage other boards. First, remove trim. Second, use a flat pry bar to remove treads or risers without damaging other boards. Then replace the tread with the same wood. If practical, use a carriage brace to reinforce stair treads.

Bonus Extra:

“OTHER” WATER FEATURES - PONDS & FOUNTAINS

If you want to really to add another strong dynamic to your pool deck, or its surrounding features in your backyard, consider adding another water feature like a pond or fountain.

Installing another water feature can be as simple as building a small pond with rigid liner or using flexible liner around the base. You can hide the edge of the liner by placing wood, rocks, or plants around the ponds edge. And if you really want to add something special you can make Koi fish your pets and residents in your pond.

For additional information on how to care for a Koi pond please see our free bonus eBook [“How to Maintain Other Water Features”](#).

A fountain can be as simple as filling a small or mid-size container with water, installing a submersible pump, and then decorating around the container with rocks. A fountain like this can go on your deck and be a focal point.

If part of your intended use for the pool deck is to create a tranquil private retreat that buffers the noise of the outside world, then the gentle stream of water from a fountain will help create that desired effect.

There are many good resources available that can help you decide which additional water feature to install and how to do it. A good place to start is your local home improvement center. They will likely have fountain and pond kits for sale.

For tips on how to maintain and clean other water features please see our free bonus eBook [“How to Maintain Other Water Features”](#).

Please remember that all pumps require electricity. Also, please remember that water and electricity can be dangerous. Take safety precautions when performing maintenance on your pump or water feature.

You should only plug a pump into a waterproof outlet that connects to a ground fault circuit interrupter (GFCI), a safeguard that helps prevent electrocution. Only install or perform maintenance on a GFCI if you're very experienced with electrical equipment. Otherwise, please hire a local electrician.

A quick word on other water features and building codes...

Many building departments will classify water features as “attractive nuisances”. The law will hold you responsible if, for example, a minor falls into your pond and is injured. The codes regarding attractive nuisances do vary by municipality so be sure to check with your local building inspector before adding another water feature.

Additional Reading List:

Tamminen, Terry. *The Ultimate Guide to Above Ground Pools*. New York: McGraw-Hill, 2004.

Cory, Steve. *Sunset Complete Deck Book*. Menlo Park: Sunset Publishing, 2007.

Cory, Steve, McClintock, Mike. *Ultimate Guide to Decks*. Upper Saddle River: Creative Homeowner, 2005.

Johnston, Larry, Ed. *Better Homes & Gardens Decks Step-By-Step*. Des Moines: Meredith Books, 2004.

Miller, Martin. *Ortho Start-to-Finish Decks*. Des Moines: Meredith Books, 2004.

Schuttner, Scott. *Building a Deck*. Newton: Taunton Press, 2002.

Tamminen, Terry. *The Ultimate Guide to Pool Maintenance, Third Edition*. New York: McGraw-Hill, 2007.

Suggested Reference Material:

<http://www.amazon.com/exec/obidos/ASIN/0071425144/createcom03-20>

Appendices:

Safety Checklist

Here are some standard safety precautions to remember:

1. If you don't know how, or you're not sure how to do certain tasks or handle tools, ask someone who knows.
2. If you need to rent any tools, or buy any power tools, ask a staff member at your local home improvement center for instructions and a demo.
3. Wear safety glasses. Especially when sawing or hammering.
4. Always pay attention to your work. Stay very focused when using a power tool.
5. Wear knee pads when working on one or both knees.
6. Do not leave tools of any sort on top of a ladder.
7. Wear a dust mask when doing any task that raises dust, like sawing.
8. Wear tighter fitting clothes because loose clothes are at risk of tripping you or being caught in machinery.
9. Wear hard-soled work boots, preferably steel toed.
10. Know your ability and your physical limitations. Take breaks.

These are generally accepted personal safety procedures. You might learn of other safety precautions through your own deck building experience or by asking local contractors. By following these general rules you will greatly reduce your chances of an accident or injury and improve your chances that your deck construction will be safe and fun.

How to Safely Handle Pressure-Treated Lumber

If you're going to be working with pressure-treated lumber please take the following safety precautions:

1. Wear gloves, unless using a power tool.
2. Wear goggles.
3. Wear a dust mask.
4. Wash your hands before eating, drinking, or smoking.
5. Never use pressure-treated wood inside your home, or indoors anywhere.
6. Do not burn pressure-treated wood or scraps.
7. Dispose of the scraps with your regular garbage.*
8. Wash your deck building clothes separate from your other clothes, and always wash them separately from your family's clothes.

*If you will have a lot of pressure-treated lumber waste and will be using a waste container remember that some waste management services charge additional fees for pressure-treated lumber.

How to Calculate Board Feet

Board Foot: a unit of measurement for lumber.

There are two different calculation methods you can use for determining the board foot. Either one will easily lead you to the correct board foot calculation.

Method 1

Step 1... Multiply nominal width by nominal thickness, in inches

Step 2... Multiply by the actual length in feet

Step 3... Divide by 12

Method 2

Step 1... Multiply nominal width by nominal thickness, in inches

Step 2... Multiply by length in inches

Step 3... Divide by 144

Example...

Let's use a 2x6 piece of lumber and say its 4 feet long (2x6x4').

Method 1... (2" x 6" x 4') divided by 12 = 4 board feet

Method 2... (2"x 6" x 48") divided by 144 = 4 board feet

Metric Conversions

U.S. Units

To Convert From	Multiply By	To Get
Inches	25.4	Millimeters
Inches	2.54	Centimeters
Feet	30.48	Centimeters
Feet	0.3048	Meters
Yards	0.9144	Meters
Square inches	6.4516	Square centimeters
Square feet	0.0929	Square meters
Square yards	0.8361	Square meters
Acres	0.4047	Hectares
Cubic inches	16.387	Cubic centimeters
Cubic feet	0.0283	Cubic meters
Cubic feet	28.316	Liters
Cubic yards	0.7646	Cubic meters
Cubic yards	764.55	Liters

Metric Units

To Convert From	Multiply By	To Get
Millimeters	0.0394	Inches
Centimeters	0.3937	Inches
Centimeters	0.0328	Feet
Meters	3.2808	Feet
Meters	1.0936	Yards
Square centimeters	0.155	Square inches
Square meters	10.764	Square feet
Square meters	1.196	Square yards
Hectares	2.4711	Acres
Cubic centimeters	0.061	Cubic inches
Cubic meters	35.315	Cubic feet
Liters	0.0353	Cubic feet
Cubic meters	1.308	Cubic yards
Liters	0.0013	Cubic yards

*To convert from degrees Fahrenheit (F) to degrees Celsius (C), first subtract 32, then multiply by 5/9.

** To convert from degrees Celsius to degrees Fahrenheit, multiply by 9/5, then add 32.

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Createyourdeck.com is committed to giving you the best information and ideas you need to improve your pool and build a great pool deck. Please send us your comments and suggestions.

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