Attractive, versatile and creative - a chain-link fence system can be an excellent choice. With the right fence you can expect years of protection, privacy and value. But as with any investment, it pays to do your homework. Chain-link fencing comes in a wide range of qualities, colors, sizes and types. Before you buy, spend a little time getting to know what's currently available. That way, you'll get the most value for your money and the right fence for your needs.

All chain-link fences aren't the same

Chain-link has four elements: fabric, framework, fittings and gates. How you combine them makes all the difference. Each of these components are available in a range of weights (gauges) and types of protective coatings. Diamond can mix and match components in an effort to shave costs or differentiate their product. Our minimum recommendations will typically follow the minimum practices defined by the American Society for Testing and Materials (ASTM). The most common coating is zinc (galvanized), but you'll also find chain-link components with vinyl or polyester color coatings in addition to zinc. These color treatments enhance landscaping and blend naturally with trees, shrubs and bushes. They'l also give you even more protection against corrosion or rust.

Some just can't handle residential wear and tear

A light chain-link system can't take much abuse. The framework may bend easily, the fabric may distort and animals may easily damage it. Even common occurrences, such as a person climbing or sitting on the fence, a heavy wind blowing debris against it or a dog jumping on it may cause damage. Inferior coatings may also allow the components to rust prematurely. Fence manufacturers make products for

many different uses-including lightweight, temporary needs. Consumers sometimes buy fencing like this because of its lower price, or because they don't understand that all fencing is not the same. The result-a "permanent installation" made from materials that weren't designed for longevity.

Quality tests prove there's a difference

Tests on light-gauge fences were conducted under the auspices of the Chain-Link Fence Manufacturers Institute. They found that a 75-pound dog and 100-pound child could severely damage or even collapse the lightest-gauge fences. In addition, the CLFMI conducted a study of recent fence buyers to learn what they expected from their chain-link fence. It turned out that once they fully understood their options, 100% of these buyers would have selected a diamond fence.

How to choose a chain-link fabric

Select your chain-link fence fabric based on these three criteria: gauge of wire, size of mesh and type of protective coating.

Check the gauge

Gauge (ga.) or diameter of wire is one of the most important factors- it helps tells you how much steel is actually in the fabric. The smaller the gauge number, the more steel, the higher the quality and the stronger the wire. From lightest to heaviest, common gauges are 13, 12-1/2 , 11-1/2, 11, 9 and 6. Unless you are building a temporary fence, we recommend fencing between 11-1/2 and 9 gauge. 6 gauge is typically for heavy industrial or specialized uses and the lighter gauges are best suited for temporary fencing.

Measure the mesh

Mesh size tells you how far apart the parallel wires are in the mesh. And that's another indication of how much steel is in the product. The smaller the diamond, the more steel is in the fabric. From largest to smallest, typical mesh sizes are 2-3/8", 2-1/4" and 2". Smaller meshes such as 1-3/4" for tennis courts, 1-1/4?for pools and high-security mini meshes of 5/8", 1/2" and 3/8" are also available.

Consider the coating

Several types of surface treatments help protect and beautify steel chain-link fabric.

- The most common protective coating for chain-link fabric is zinc. Zinc is a self-sacrificing element. In other words, it dissipates while protecting the steel. It also offers cathodic protection which means that if the wire is cut, it "heals" the exposed surface by developing a white

oxidation layer that prevents red rust. Typically, galvanized chain-link fabric has a 1.2-ounce per square foot coating. For specification projects requiring greater degrees of longevity, 2-ounce zinc coatings are available. The longevity of the protective coating is directly related to amount of zinc that is applied.

There are two primary ways that chain-link fabric is galvanized (coated with zinc). The most common is Galvanized After Weaving (GAW) where the steel wire is formed into chain-link fabric first and then galvanized. The alternative is Galvanized Before Weaving (GBW) where the strand of wire is galvanized before being formed into the mesh. There is some debate over which is the best method. GAW ensures that all of the wire is coated, even the cut ends, and galvanizing the wire after it is formed also tends to increase the tensile strength of the finished product. GAW is typically the method of choice for the larger manufacturers, since it requires a higher level of manufacturing expertise and capital investment than simply weaving the wire, and it yields efficiencies only available with this method. GBW is a good product, provided it has a comparable diamond size, weight of zinc coating, gauge and tensile strength.

- You'll also find aluminum-coated (aluminized) wire on the market. Aluminum differs from zinc in that it is a barrier coating rather than a sacrificial coating and as a result cut ends, scratches, or other imperfections are prone to red rusting in a short period of time. Aluminized is best suited where esthetics is less important than structural integrity. Another metallic coating sold under various trade names such as Galvinal™, Bezinal?or Galfan™ uses a combination zinc-and-aluminum, uniting the cathodic protection of zinc with the barrier protection of aluminum.
- Want color? Look for polyvinyl chloride applied in addition to the zinc coating. This provides a second kind of corrosion protection and blends aesthetical y with the environment. These color coatings come in three principle coating methods:
    - Extruded - the vinyl jacket encompasses the steel core - suitable for most residential/light commercial applications
    - Extruded bonded - an adhesive bonds the vinyl jacket to the core wire
    - Thermally fused - the vinyl coating is fused to the galvanized steel core - suitable for all applications

Be sure that you understand both the gauge of the finished product and of the steel core wire. A product that is produced in an 11 gauge finished diameter which, with most coating processes, means that the steel core is very light - not recommended for normal installations of 1-3/4?to 2-3/8 diamond size mesh.

Fabric should meet these specifications

The following ASTM specifications apply to chain-link fence fabric:

- Specification for Zinc Coated Chain-Link Fence Fabric
- Specification for Aluminum Coated Chain-Link Fence Fabric
- Specification for Zinc-5% Aluminum-Mischmetal Alloy Coated Chain-Link Fence Fabric (Galvinal)
- Specification for Polyvinyl Chloride Coated Steel Chain-Link Fences

How to choose a fence framework

As with chain-link fabric, you'll want to look at three things when deciding on the framework for your chain-link fence: gauge or thickness of the steel, diameter of the pipe, and the type of protective coating.

Start with the gauge

Gauge (ga.) of the steel is an important factor as it's directly related to the strength of the framework. From lightest to heaviest, common gauges of residential fences are 20, 19,18, 17, 16 and 15. All residential framework should be made from steel that has a minimum yield strength of 45,000 pounds per square inch. Most people tend to ignore tensile strength and concentrate more on the gauge and diameter - but they shouldn 抉. Most domestic manufacturers comply with minimum tensile strengths; however, some product (typically import) does make its way into the marketplace. A low tensile strength 16 ga. post may not be as strong as a 17 ga. post with proper tensile strength.

Decide on the diameter

Diameter is the width of the pipe. It's also a strength factor, because the wider the diameter the more steel is required. Typical diameters are 1-3/8", 1-5/8", 1-7/8", and 2-3/8" for residential fences. ASTM makes the following recommendations for residential chain-link fence framework. Remember these are national standards, and regional considerations tend to alter standard practice. Our recommendations generally parallel ASTM however, you can use our online budgetary project estimator to give you what is commonly used in your area:

Application		Light Duty	Medium Duty	Heavy Duty
3 4 high	Toprail	1-3/8 17 ga.	1-3/8 16 ga.	1-3/8 15 ga.
	Line Posts	1-5/8 17 ga.	1-5/8 16 ga.	1-5/8 15 ga.
	Terminal Posts	1-7/8 17 ga.	1-7/8 16 ga.	1-7/8 15 ga.
5 6 high	Toprail	1-3/8 17 ga.	1-3/8 16 ga.	1-5/8 15 ga.
	Line Posts	1-7/8 17 ga.	1-7/8 16 ga.	1-7/8 15 ga.

Terminal Posts 2-3/8 17 ga. 2-3/8?16 ga. 2-3/8?15 ga.

Finish with the coating

There are several types of protective coatings for chain-link fence framework.

- Perhaps the most widely used is inline flow-coat galvanized. As steel is formed into pipe in this process, it flows through a pot of molten zinc, coating its exterior surfaces. An organic polymer treatment provides additional exterior corrosion protection. A zinc rich paint coating protects the interior of the pipe.
- By contrast, pre-galvanized pipe uses a process that galvanizes the metal before forming it into round pipe. After the steel is formed and welded, the seam is re-metallized with a zinc-rich coating.
- In the final type of coating, hot-dip galvanized pipe is produced by inline forming and welding, followed by total submersion in a tank of molten zinc. Excess zinc on the inside of the pipe is blown out with air after the pipe resurfaces.

Color can complement your surroundings

Polyvinyl chloride (PVC) and polyester color coatings can supplement the metallic protective coatings described above. You'll gain an additional defense against corrosion, and add aesthetics to blend with the environment. Standard colors are black, brown and green. There are two primary methods of coating that we recommend, both of which require sound process controls to ensure that the material is properly prepared to receive the coating:

- PVC is applied to the framework in a thickness of 10 to 14 mils-referred to as a heavy mil coating (visualize a rubber-like coating).
- Polyester coating is a 3-mil color powder that is electrostatically applied.

Both products, properly applied, will provide good results however the trend is increasingly toward the polyester product. Most manufacturers will warrant the product for 10-15 years. We don 挟 recommend painting

Framework should meet these specifications

The following ASTM specifications apply to framework:

- Specification for Strength Requirements of Steel Posts and Rails for Residential Chain-Link Fence 1992 (F 761-82)
- Specification for Stand Colors for Polymer-Coated Chain-Link Fence

Fittings hold it all together

You know a chain is only as strong as its weakest link. The same applies to a chain-link fence. All steel fittings such as bands, tension bars, nuts and bolts, and gate hardware must be hot-dip galvanized to prevent corrosion with similar coatings as with the framework and fabric. Some items such as rail ends and eye tops are made from die-cast aluminum as well as galvanized steel. Gate hardware is very important since it affects the operation of the only moving part of the fence. The post hinge and receiver of the gate frame hinge must be perfectly round so the gate hangs correctly and doesn't sag. Tie wires should be made from aluminum or galvanized steel. Fittings must be designed for attractive form, good fit, and sound functioning. While there are ASTM specifications on fittings, this is an area that has not been as fully addressed by the industry as it needs to be. The result is that there are a lot of what we consider to be sub-standard fittings in the marketplace. One small part rusting can cause unsightly staining on large areas of your fence.

Fittings should meet these specifications

The following ASTM specification applies to fittings:

- Specification for Fence Fittings

Your gate should match your fence

For consistency, the fabric and framework of your gate should be the same as that in your fence. For example, if you choose 11-gauge fabric and 16-gauge framework for your fence, you should make the gate from the same materials.
There are three types of gate construction: bent-fame, square-welded or aluminum-corner.

- Bent-frame gates have all four corners mechanically bent
- Square-welded gates have all four corners welded
- Aluminum-corner gates are assembled with four die-cast gate corners, or ells

Gates should meet these specifications

The following ASTM specification applies to gates:

- Specification for Residential Chain-Link Fence Gates