

The Ludowici Difference

SUPERIOR CRAFTSMANSHIP

Unmatched Durability and Endless Inspiration

400 years ago, the Ludovisi family of Rome, Italy began producing expertly crafted clay roof tiles. By the late 1800's, their descendant, Carl Ludowici, used this unique form of oldworld craftsmanship in a roof tile factory of his own based in Chicago, Illinois. The popularity of his products led to the expansion of several factories, until Ludowici was eventually consolidated into a single facility in New Lexington, Ohio.

Today, Ludowici tiles are still made in New Lexington, Ohio and are revered worldwide for their distinctive look and sustainable, long-lasting beauty. With over 130 years of experience, Ludowici offers a broad range of color and texture options, allowing endless inspiration for architects, designers, and homeowners alike.

For truly distinctive tiles that reflect the unparalleled beauty of the past with the technology of the present, look no further than Ludowici.

3 | Domestic Products











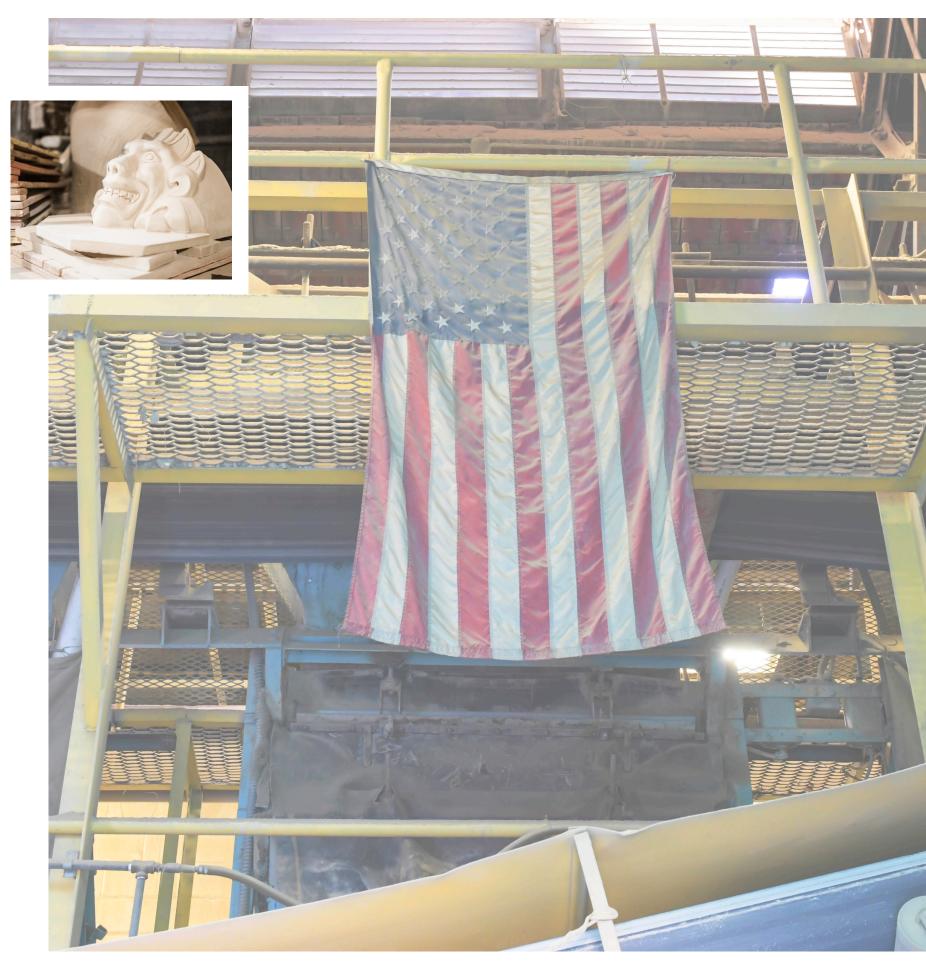
All Ludowici terra cotta products have been proudly manufactured in the USA since 1888. Our commitment to quality has never changed, which is why we are one of the world's most trusted sources for distinctive architectural terra cotta. Our customers can expect their investment to last a lifetime, and rest easy knowing we'll be there, now and in the years to come.

Exceptional Quality

Southeast Ohio boasts some of the highest-quality clay deposits in the world. At Ludowici, we develop premium terra cotta products through our proximity to these locally sourced raw materials.

Our products are made from 100% clay and are manufactured without the use of:

- Petroleum-based materials
- Unproven synthetic materials
- Sand or silica
- Surface sealers
- Cementitious materials



ENDURING BEAUTY, GUARANTEED

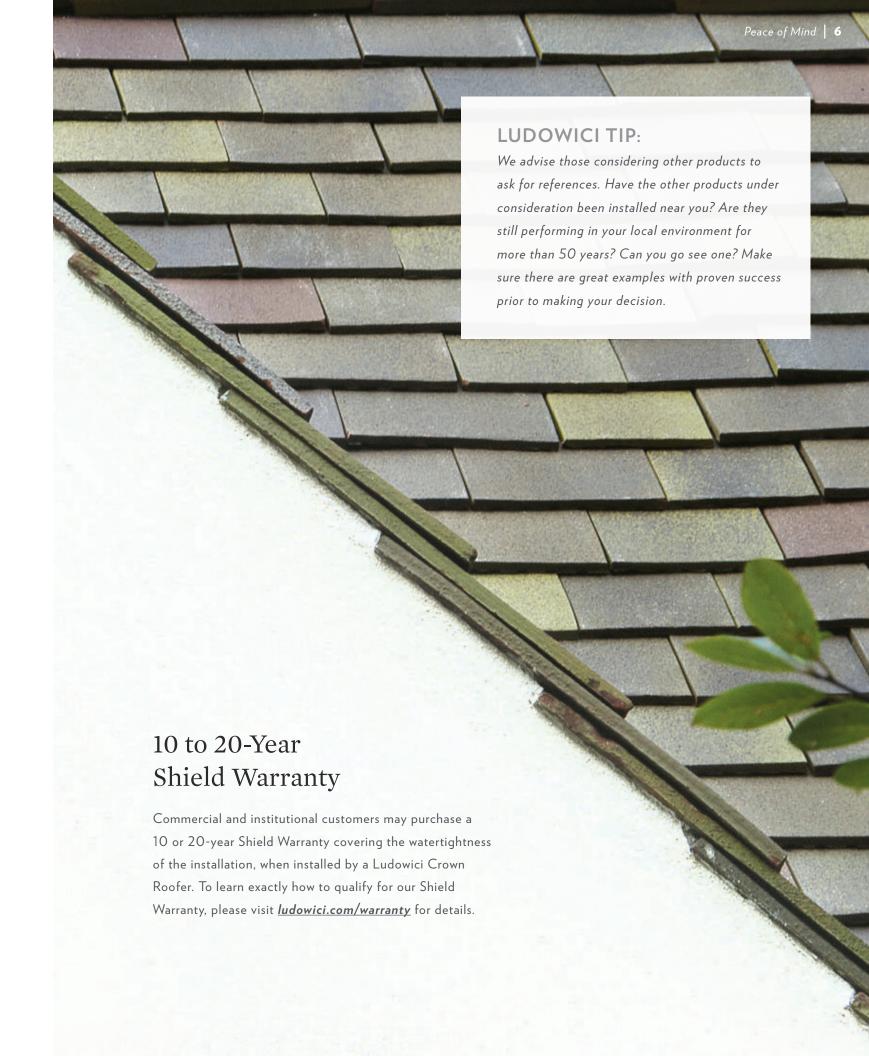
Ludowici tiles are more than just beautiful. They are backed by one of the best material warranties in the industry. We give you peace of mind that your investment will last for many years to come, with a 75-year non-prorated material warranty, including color, on every tile we produce.

75-Year Warranty

Unlike most competitors, our material warranty:

- Includes color-fastness
- ♦ Is fully transferable on original installations
- Does not require venting of the roof for tiles to perform properly
- Is serviced domestically by our US-based company

When we are shown historic Ludowici tiles—most well over 100 years old—it is no surprise to us that the majority of them have successfully withstood the elements, even in the harshest of climates. They are virtually maintenance-free; you can rest assured every piece of your new tile will have exceptional quality and unmatched durability backed by our 75-year material warranty.



PROVIDING PEACE OF MIND



Proven Technology & Performance

For thousands of years, villages and cities of old-world Europe, Asia, and beyond have used clay roofing as a pillar of architecture and design. Inspired by this philosophy, we incorporate old-world craftsmanship with modern production technology to design equally enduring terra cotta products that stand the test of time.









Timeless Color

We attribute the color retention of our products to a kiln-firing technique perfected over the last 130 years. Our tiles are fired at the extreme temperature of 2,100 degrees Fahrenheit for 24 hours to ensure the glaze has been properly fused onto the tile. This fusing process quarantees our color will not fade over time, no matter how harsh the climate. We back our color fastness with an unrivaled 75-year warranty on every Ludowici tile.



Minimal Maintenance

Many other manufacturer's tile products, such as concrete tiles, require regular re-coating, painting, or chemical cleaning to ensure the longevity of their appearance and performance. Ludowici tiles are guaranteed to retain these properties for 75-years, requiring minimal maintenance.



Trusted Installers

At Ludowici, we hold ourselves to the highest standards, and want those installing our products to do so too. That's why we created the Ludowici Crown Roofer program. To qualify for the program, firms are fully vetted and trained to ensure their dedication to quality and craftsmanship meet our standards. Choose a Ludowici Crown Roofer and know the job is done by a qualified, trained professional.

Requirements include:

- Being nominated by a Ludowici sales team member
- Passing an in-depth credit inquiry
- Completing Ludowici's Crown Roofer factory training
- Maintaining a minimum of two Ludowici factory-trained employees on staff
- Note: Only Ludowici Crown Roofers can offer the Ludowici Shield Warranty





Standards and Certifications

Ludowici products earn many certifications and ratings from the organizations setting the standards for sustainability: Cool Roof Rating Council, Cradle to Cradle, U.S. Green Building Council's LEED program, and Energy Star.



COOL ROOF RATING COUNCIL

The Cool Roof Rating Council is an independent, non-biased organization whose mission is to implement and communicate fair, accurate, and credible property energy performance rating systems for roof surfaces. Ludowici has over 26 colors rated with the Cool Roof rating program.



CRADLE TO CRADLE

Products that qualify for this holistic certification program are not only efficient, but also demonstrate a positive impact on people and the environment. Ludowici products have a material reutilization content score of more than 30.



LEED

The U.S. Green Building Council's LEED Rating System objectively measures the sustainability of buildings and building materials by their impact on several environmental quality criteria. Ludowici is proud to contribute toward LEED certification by offering products that support MR: Building Product Disclosure and Optimization Material Ingredients and SS: Heat Island Reduction credits.



ENERGY SAVINGS

Energy savings upwards of 20% are common with a Ludowici roof (when compared to asphalt). Many of our standard colors meet or exceed the minimum SRI requirements for credit. Additionally, we offer sunscreen systems through Terreal North America that provide an attractive way to direct and diffuse sunlight from building exteriors, creating an effective means to reduce solar heat gain while maintaining daylighting.

13 | Unmatched Durability LUDOWICI TIP: Ludowici tiles far exceed the requirements for Grade 1 certification. If a company claims a high ASTM rating, request proof of third-party testing to verify accurate results.

UNMATCHED DURABILITY

ASTM C1167 Grade-1 Certified Durability

Every tile Ludowici manufactures is ASTM C1167 Grade 1 certified. And that matters.

ASTM classifies tile by a Grade 1, Grade 2, or Grade 3 certification based on its durability, appearance, and performance. Grade 1 tile is considered the highest performing and is approved for use in any climate. Lowergrade tiles have high performance failures in areas like colder northern climates, where homes experience harsh winters and multiple freeze-thaw cycles, and in coastal regions, where salt intrusion, water absorption, and severe weather events are common.

Ludowici products last a lifetime in any climate—and are always Grade 1 certified.

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PERFORMANCE TO WEATHER THE STORM

Ludowici tiles have the highest wind uplift capacity and weather performance of any clay tile on the market. The clay composition of our tiles creates an ultimate breaking strength able to resist high wind stresses experienced during extreme weather events, such as tornadoes and hurricanes. When properly installed, high-quality terra cotta tiles can sustain winds in excess of 125 miles per hour—the kind that would easily strip off many other roofing materials.

Key performance measurements to consider when comparing roofing materials:

- Extreme weather performance
- Breakage strength
- Moisture absorbency
- Mildew & mold resistance
- Fire resistance

Built to Code:

- ♦ Florida Building Code approved
- Miami Dade approved
- Texas Department of Insurance (TDI) approved



Performing Under Pressure

The breaking strength of terra cotta roof tiles is a critical measure of how long you can expect your roof to last. A tile that breaks easily is dangerous—pieces can fall during a storm and create exposure to water leakage, leaving building owners unaware of the irreversible damage.

Through superior raw materials, profile engineering, and our manufacturing process, Ludowici tiles are made to withstand more stress than any other clay tile products on the market. Our production process allows tiles to form into a dense, vitrified material with the highest strengths available—essential for peak performance.

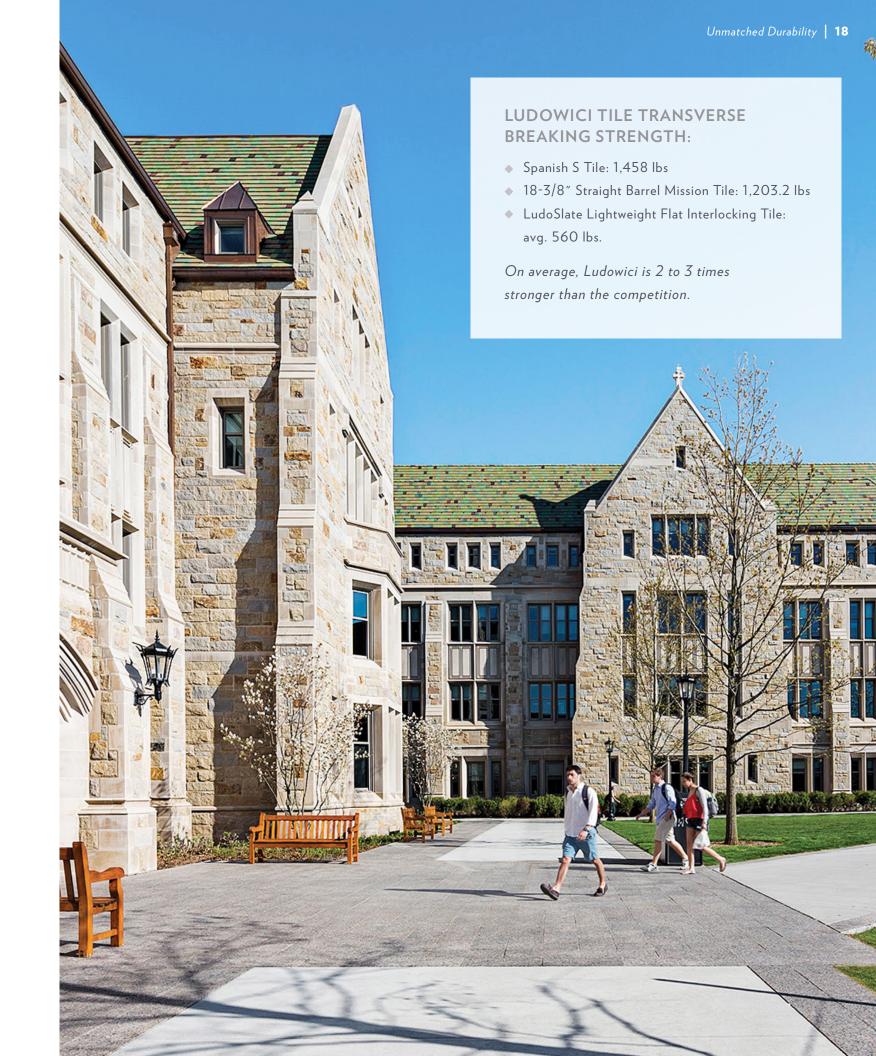
Poor-quality tile is a poor-quality investment. Not all tile is the same! Similar-looking handmade tiles may seem cost effective, but almost always come with a very low breaking strength—usually a result of substandard clay body composition and firing process. There is nothing affordable about continuously having to replace tile, and you will never be able to replace your time.

At Ludowici, we regularly test industry tiles to analyze and compare breakage strength, and are happy to test alternative terra cotta tiles you may be considering. We take pride in being the leader in strength and durability.

Outstanding Walkability

An important requirement of roof tile is its ability to withstand foot traffic. Building maintenance is unavoidable, and you shouldn't have to walk on eggshells to do it. Because Ludowici terra cotta tiles have the strongest breaking strength in the industry, our tiles are very walkable—while many others crack under pressure.

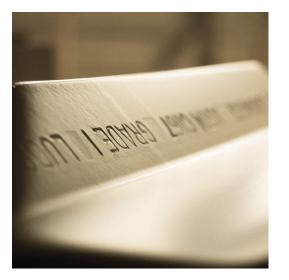
Broken tiles that go unrepaired, or unreported, lead to roof leaks and moisture issues within a building. The easiest way to prevent the additional maintenance problems, like having broken tile, is selecting terra cotta from Ludowici to keep you moving forward.





Lowest Moisture Absorbency

Moisture absorption degrades all products, and every climate poses a risk of water damage—like areas of heavy rainfall, exposure to coastal salt air, or the experience of freeze-thaw cycles causing structural stress. With an average of less than 1%, Ludowici tiles have the lowest water absorption rate of any tile on the market.



Pictured: Ludowici ASTM C1167 Grade 1 Stamp



Pictured: Spalling



Pictured: Ludowici color permanent tile roof (front); Concrete roof with salt intrusion and fading (back)

Grading Moisture Levels

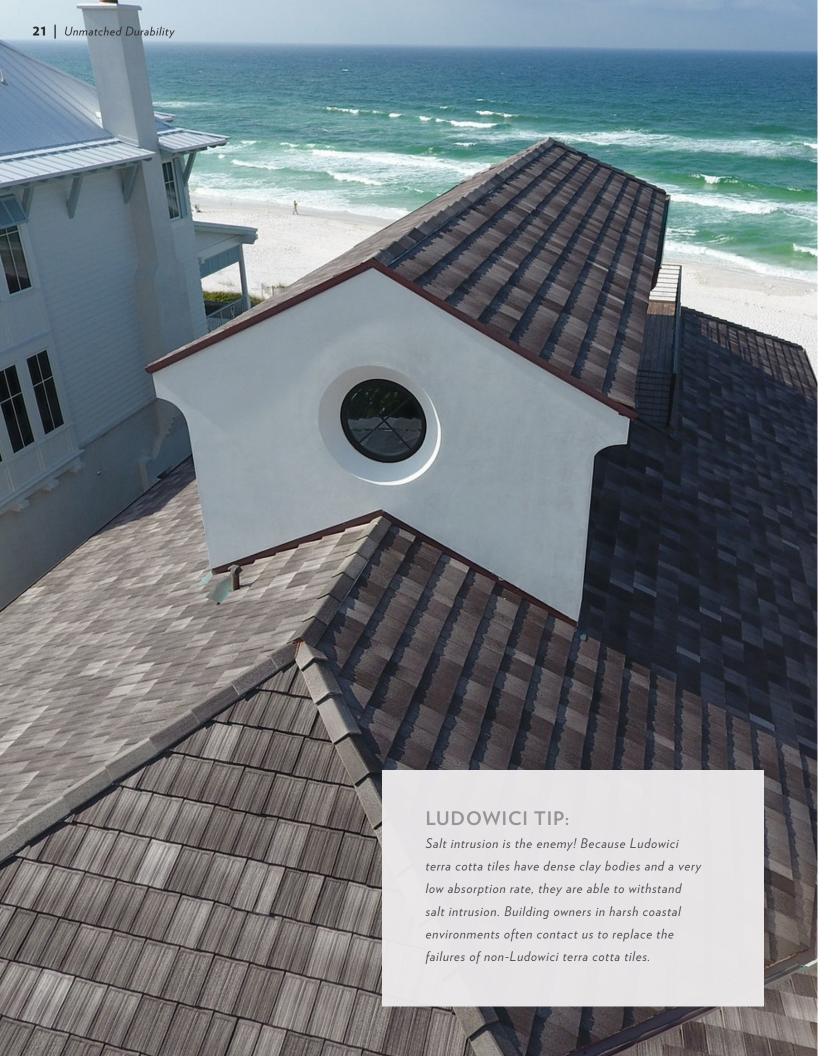
Ludowici's moisture absorbency is Grade 1—with Grade 1 ranging from a 1% minimum to a 6% maximum. Our tiles have absorption rates of less than 2%, ranking far ahead of most competition's 6-15% average.

What are Freeze-Thaw Cycles?

In winter months, tiles are exposed to colder elements. When temperatures reach below freezing then climb back above, moisture collected in tiles repeatedly undergo what are called freeze-thaw cycles. Over time, tiles with higher moisture absorption rates are subjected to larger mechanical stress, and eventually crack or spall—leaving you forced to replace the unsightly results. Rest assured with Ludowici our tiles always exceed Grade 1 requirements for freeze-thaw environments.

Why Low Moisture Absorbency Matters:

- Helps maintain breaking strength
- Prevents salt intrusion
- Reduced chances of mold & mildew growth
- Low impact freeze-thaw cycles



Salt-Resistant

Salt from coastal air can be devastating to building products—especially with substandard roof tile not designed to prevent it. In a more porous tile, salt crystals infiltrate open pockets, then begin to expand and contract. Once sea salt permeates the body of a tile, it will fail. With salt air being able to travel well over a mile inland from the coastline, you need the clay body of a Ludowici tile that is made to resist such complications.



Pictured: Ludowici color permanent tile roof (back); Salt intruded and color fading concrete roof (front)



Pictured: Concrete tile failure with fading, Florida

Algae-, Mildew-, and Mold-Resistant

Roof tiles are susceptible to mildew, algae, and moss—all of which require professional cleaning on a regular basis. Yet, while many claim there is no known manufacturing process to prevent this condition, we know better.

High-quality tiles with smooth surfaces and very low water absorption rates, like those produced by Ludowici, dramatically limit mildew, algae, and moss growth by preventing moisture from entering the clay body of the tile in the first place. Virtually maintenance-free, our tiles last longer and significantly reduce the need for chemical cleaning.

Thanks to their low moisture absorption rate, Ludowici tiles never require sealants or additives to enhance their performance. Inferior terra cotta tiles are often dipped during the manufacturing process or sealed after installation in order to delay water absorption. Eliminating the additional cost of sealants saves owners money and the headache of inevitable performance issues, like damage and discoloration caused by UV rays.









Fire-Resistant

One of the great benefits of terra cotta tile is its inability to burn. Many non-fireresistant roofing products require expensive treatments to meet fire codes.

With Ludowici tile, extra steps and added costs are eliminated and replaced by peace of mind. All Ludowici products are Class-A fire-rated without special treatment when used in the proper assembly.



WHAT'S THE DIFFERENCE?

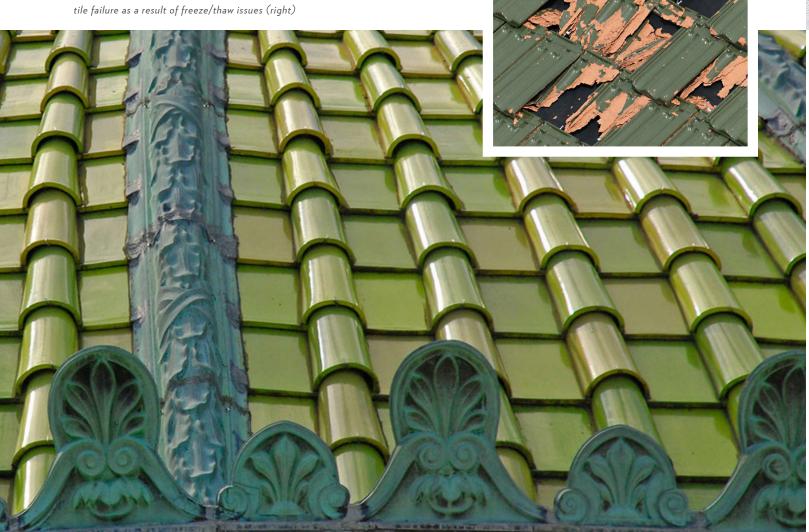
Imported Terra Cotta vs. Ludowici Terra Cotta

Would you rather purchase something once and have it last, or pay for something three times over, repeating the costs, failures, and labor? That was an easy one. What's not easy is keeping up with the many issues known to arise when purchasing substandard, imported terra cotta tiles:

- ♦ Imported terra cotta tiles are typically rated Grade 2 or Grade 3. Terra cotta tiles are graded on a quality scale of 1-3, with 2 and 3 indicating limited geographical use.
- ♦ High moisture-absorption rates of between 6-15% are common, and can cause fast failures. Ludowici's average is more than six times lower than the 6% maximum criteria for Grade 1 tile.
- ♦ Imported tiles typically require extensive batten and counter-batten systems for installation, adding to labor and material costs. Failure to implement this step in order to cut corners can easily result in a voided warranty. Ludowici tiles can be installed directly to the deck resulting in a faster and less expensive installation.
- Many import companies are here today and gone tomorrow.

Pictured: Color permanent Ludowici roof tile (below); Imported competitor

◆ It is much more difficult to enforce a warranty—if there is one—and determine who is responsible when dealing with importers and non-US-based companies.





Pictured: Ludowici color permanent roof tile (left); Concrete roof with fading and mold growth (front/right)

Concrete vs. Clay

There is a direct correlation between concrete's price and concrete's performance. Buying a lower priced product often yields a higher life-cycle cost. Let us look at some long-term costs associated with choosing "affordable" concrete:

- Concrete tiles require regular cleaning, re-sealing, and sometimes even painting to rejuvenate their appearance.
- Concrete tiles offer no color warranty.
- In many cases, concrete tile's color quickly erodes and fades shortly after installation.
- Concrete tiles are porous, resulting in a high moisture absorption rate of 10-15%,
- Concrete's high moisture absorption rate can lead to significant mold and mildew build-up.
- Power-washing to remove algae, mold, and mildew build-up adds moisture to be absorbed.
- Unlike terra cotta, concrete is not offered in a vintage or used resale market because it is known to have one-time use quality.

WHAT'S THE DIFFERENCE?

Wood Shake vs. Clay

Real wood or cedar shakes have significant maintenance issues beginning shortly after installation:

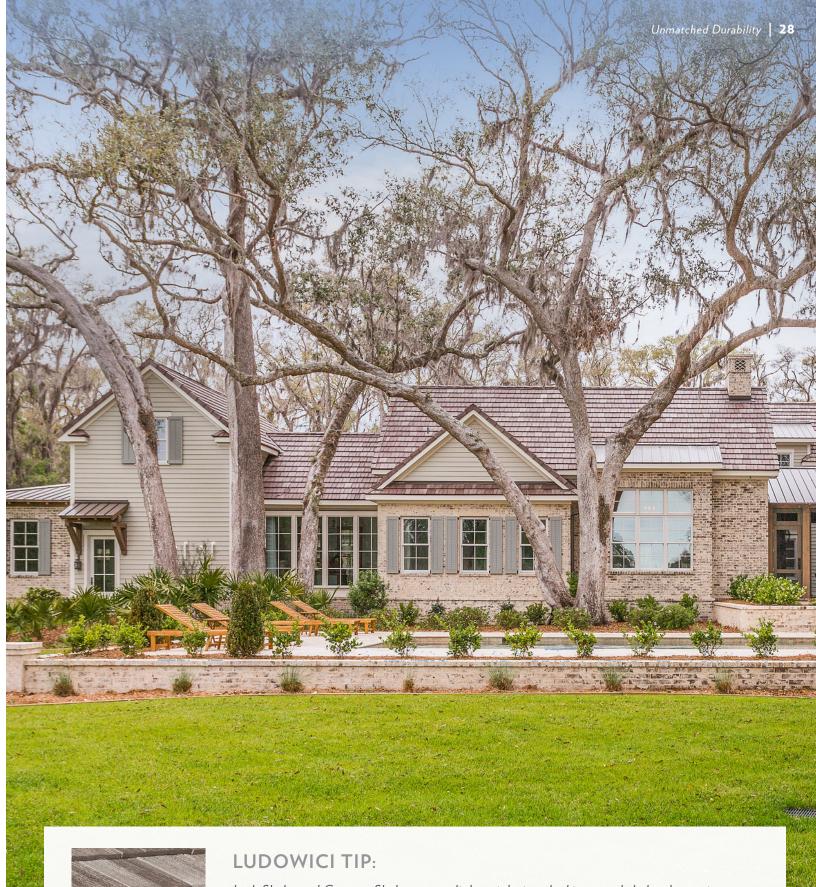
- Wood begins to warp, twist, and curl—unlike durable Ludowici tiles that maintain their shape indefinitely.
- Whereas real wood shakes are flammable, creating a hazard for occupants. Ludowici's terra cotta shake alternatives are always made of fire-proof clay.
- Wood shake tiles may require intermittent underlayment at each course line. Ludowici terra cotta shakes never do.
- Colors applied to wood shake fade over time. Ludowici terra cotta shakes are color permanent and maintain their beauty for the life of the product. If the appearance of fading or weathering is desired, Ludowici can color-match with no wait time or product degradation.
- Clay is abundant, whereas natural wood shakes contribute to the destruction of old-growth forests.





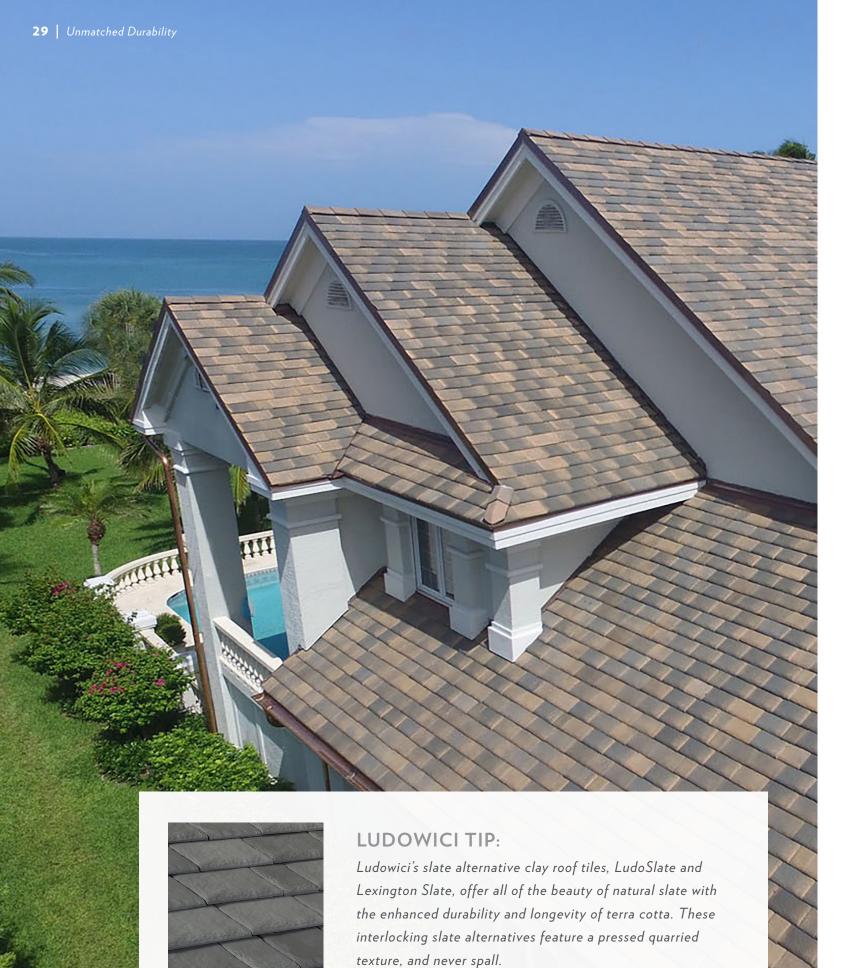


Pictured: Shake products showing warping, curling and mold growth





LudoShake and Century Shake are our lightweight interlocking wood shake alternatives. Made with the texture and appearance of hand-split wood, these can be installed in our standard full-size tile, or with our 3-size Premier option for a more natural look. Ludowici's wood shake alternatives are easy to install, maintenance-free, and have fewer pieces per square than most alternatives.



WHAT'S THE DIFFERENCE?

Slate vs. Clay

Natural slate is one of the most expensive roofing materials on the market, and still requires adequate maintenance over time. Unlike Ludowici clay tiles, natural slate:

- ♦ Has limited color availability and no customization
- ♦ Has a variance that is difficult to match in other building products and can cause a dead end in design if no matching choices are available.
- Can be hard to replace. Slate is run by lot, and each lot is different. If you need a replacement, it can be VERY difficult to find a blend-able match.
- Can be very heavy depending on the thickness selected.
- Can often have a long lead time.
- Imported economical options are typically low quality, with rapid spalling rates.





Pictured: Slate products showing delaminating and mold growth

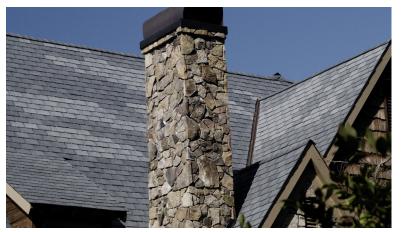
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WHAT'S THE DIFFERENCE?

Synthetic Products vs. Clay Tiles

Synthetic tiles are not only toxic to the environment, they don't last long in it either. They're unable to withstand heat, so problems such as warping, curling, fading, efflorescence, spalling, flaking, and chalking are common. More reasons why synthetic products are no match for clay tiles include:

- Plastic roofing products are made from crude oil, one of the least environmentally friendly raw materials available.
- Synthetic slate tiles are flammable. When they burn, there are potentially hazardous toxic fumes.
 For a price, passed on to the consumer, manufacturers add other toxic chemicals to make these tiles non-combustible.
- ◆ Synthetic products can be made from a long list of ingredients—metal, cement, asbestos, fiberglass, cellulose, rubber, etc.—then mixed into unproven formulas. The result is often a defective tile that quickly degrades, leaving the building owner to clean up the mess.
- Often discontinued, synthetic products go off the market with little to no warning, and manufacturers are unable to offer future replacements.
- They have substantial failure rates and performance issues, including the production of white salt deposits, salt intrusion, freeze-thaw cycles, discoloration, and changing shapes.
- Many synthetic roofing manufacturers claim warranty coverage for decades longer than they have been in business.













Pictured: Synthetic product discoloration and synthetic product burning (bottom right)

CUSTOM CRAFTSMANSHIP

ENDLESS OPPORTUNITY.



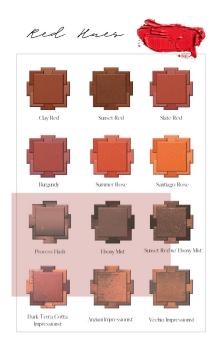
A Wide Range of Profiles

Ludowici offers over 40 standard roof tile profiles, all made from the highest-quality terra cotta available. In addition to our standard field-tile profiles, we offer hundreds of accessory piece options to trim and finish your project. Our specialty items will make your new Ludowici roof a durable, architectural statement for years to come.



Tile Customization

Ludowici has been customizing products for its customers since it was founded in 1888. As a result, we have shaped thousands of different tile profiles, and are still able to reproduce any tile we have ever made. In addition to reproducing old and historic tile pieces, we regularly work with architects, designers, and building owners to develop custom tiles that set their projects apart.





Vast Color Palette

All ceramic and glazed products produce a natural color range, seen as a desirable quality of working with terra cotta. These variations create a depth and visual interest that other materials don't offer. With over 50 standard colors and the ability to custom match almost any hue, our color capabilities are endless. Since our color glazes are kiln-fired at extreme temperatures during production, the original tones and hues on each tile are there to stay.

Ludowici is proud to provide by far the strongest and longest color warranty on the market-no other manufacturer in the world comes close. Color is included for the duration of our 75-year limited material warranty on every tile.

Enhanced Texture Options

Surface textures not only produce practical benefits, such as reducing glare reflecting off a roof, but also produce artistic ones. Combine one or more of our texture options to bring your creative vision to life.

At Ludowici, our skilled craftsman can recreate a number of finishes to authentically replicate the surface of age-old terra cotta tiles. Many tile textures are applied by hand, allowing for a distinctive, handmade look. Custom textures can be applied to match historic applications or meet a specific design aesthetic. Textures can be combined to create a unique appearance, taking your roof to the next level.



AFFORDABLE LUXURY

Ludowici terra cotta products are available in a wide range of price-points. When you compare the lifecycle costs of Ludowici terra cotta tiles to other roofing materials, we always come out on top. Depending on the size, weight, production method, and colors/textures applied, many profiles begin at the affordable price of \$300/Square (or \$3.00/sf) for field tile materials.

Building owners can work with Ludowici to determine the best tile options based on their project's budget and roof system requirements. Considering the lifetime use of our product, the value of your peace of mind is priceless.

PERSONAL SERVICE

Customer Service Team

Ludowici has a dedicated and experienced team of customer service representatives who can assist you with order entry, production scheduling, and order completion, ensuring your needs are met in a professional and timely manner.

Technical Service Team

There's no need to wonder if you have all the parts and pieces that make up a beautiful Ludowici roof. Our in-house technical team will assist in determining exactly what you need. Our team is comprised of engineers and architects with vast product knowledge and industry experience to make getting you take-offs, tile identification, part drawings, modeling, or project estimates a breeze! Everyone at Ludowici works together to provide you with the correct materials and the technical support necessary to ensure your project is a success.

Logistics Team

Shipping Ludowici terra cotta materials, whether in the US or globally, is made easy by our on-site logistics professionals. Ludowici's shipping department has the expertise to ensure our terra cotta products are adequately packaged and transported to their final destination. Whether you select to have Ludowici handle your order from start to finish, or arrange freight with a separate logistics company, our team is here to help.





HOW LUDOWICI COMPARES

| | ————— | | | | | |
|--------------------------------|--|--|--|--|--|--|
| CRITERIA | LUDOWICI CLAY TILE | OTHER CLAY TILE | CONCRETE TILE | SYNTHETIC TILE | WOOD SHAKES | SLATE |
| General Attributes | 75-Year warranty Including color; lower water absorption than other materials, highly decorative; Made in the USA | Decorative, varying degrees of strength, limited installation areas due to inability to handle freeze-thaw cycles | Popular clay tile alternative; high water absorption; no color warranty; requires maintenance and even painting | Newest roofing material in the marketplace; no color warranty; less realistic look; generally not "green"; prone to warping and fading | Traditional roofing material; not color- fast; shorter life span than other products; installation can be difficult | Traditional roofing material; generally long lifespan; longer lead times for true US slate; Imported slate of questionable quality |
| Profiles Available | Spanish, Mission, Flat Shingle, Interlocking, Shake Alternative, Slate Alternative, Raised Profile, Lightweight | Spanish, Mission, Flat Shingle, Interlocking, Shake Alternative, Slate Alternative, Raised Profile, Lightweight | Spanish, Flat, Shake Alternative, Slate Alternative, Lightweight | Shake Alternative, Slate Alternative, Spanish, Flat, Interlocking & Lightweight | Shake | Slate |
| Warranty | 75-Year, includes color. | Average 30-year warranty, does not include color | Average 25-year, does not include color | Average prorated after 7 years up to 50 years; color not covered | Warranty from defects, does not include color | Generally no material warranty |
| Average Lifespan | 75+ years | Varies by manufacturer, ASTM grade and installation location | 30-50 years, varies by manufacturer, ASTM grade and installation location | 15-50 years, varies by manufacturer and installation location | 20-40 years, depending on wood shake quality, proper installation and maintenance | Hard slate can last 75-200 years; Soft slate 50-125 years |
| Available Colors | 50 standard, plus custom color development | Limited color palette – varies by manufacturer | Limited color palette – varies by manufacturer | Limited color palette – varies by manufacturer | Natural wood tones | Greens, reds, purples, grays, blacks |
| Color Fastness | Yes | Yes | No | No | No | Sometimes – there are some slates that weather, fade, mottle and oxidize over time. |
| Customizable | Yes | Not usually | No | No | No | No |
| Moisture Absorbency | <1% water absorption (ASTM Grade 1) | 4%-12% (ASTM Grades 1-3); varies by manufacturer | 10%-15%; varies by manufacturer | N/A | Depends upon wood type and building location | Depends upon slate composition and slate source location |
| Mildew- and Mold- Resistant | Yes | Not usually | No | Not always | No | No |
| Fire-Resistant | Yes | Yes | Yes | Sometimes – Fire-retardant treatment may be required by code | No – Fire-retardant treatment may be required by code | Yes, with underlayment |
| Walkability | Yes | Sometimes | Yes | Not recommended | Yes | No |
| Battens Required | No | Sometimes | Yes | No | No | No |
| Maintenance | Minimal, periodic cleaning if desired | Some clay tile requires sealant | Yes, cleaning and potentially painting | Minimal, periodic cleaning | Annual cleaning | Minimal, periodic cleaning |
| Sealing | No | Sometimes | Sometimes | No | Periodic preservative treatment may be necessary to slow decay | No |
| American Made Product | Yes | Not always | Yes | Not always | Not always | Not always |

This chart represents industry averages. We encourage you to research the products under consideration and evaluate all costs, installation, environmental and design factors when deciding on your new roof.



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