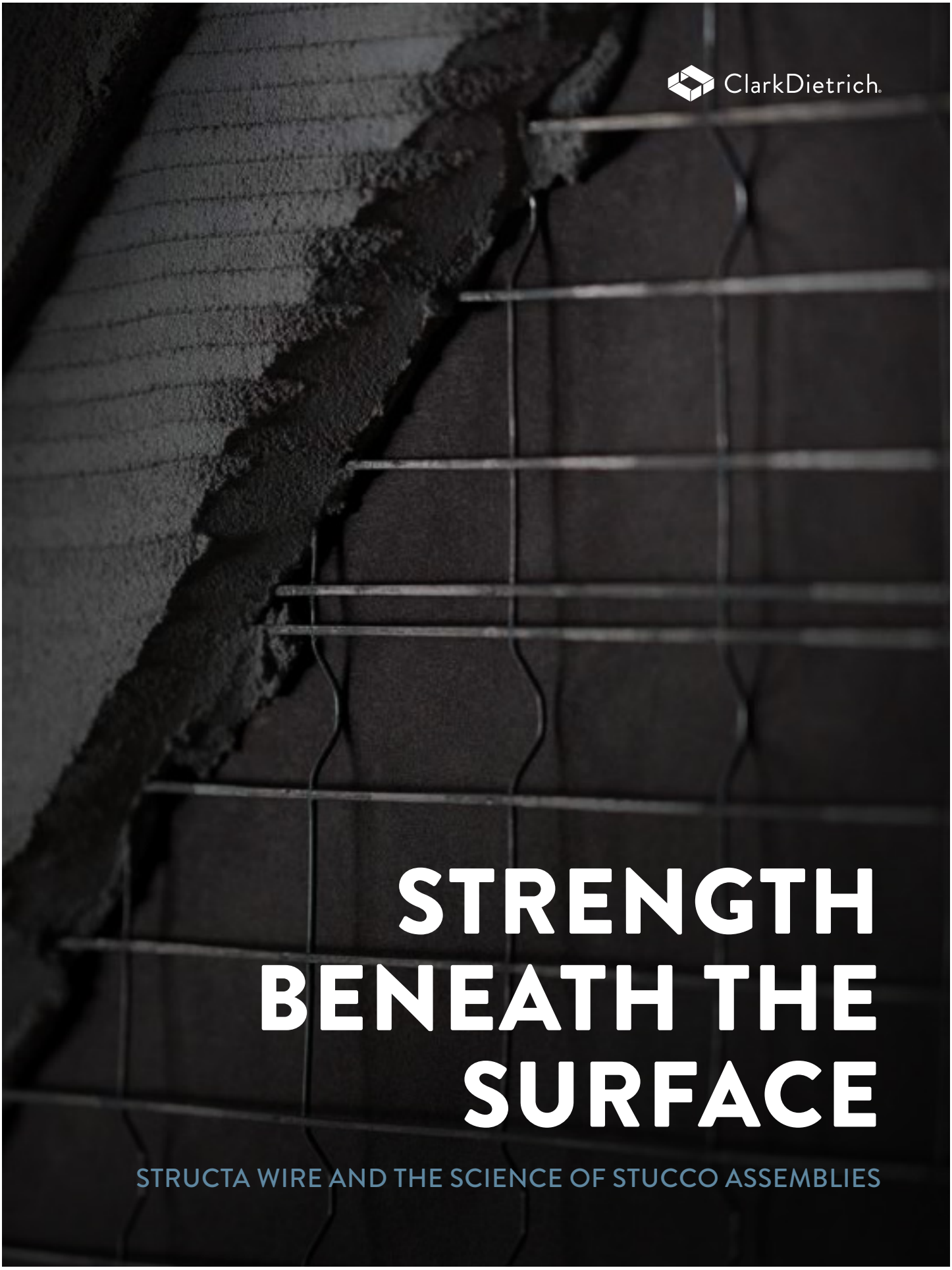

STRENGTH BENEATH THE SURFACE

STRUCTA WIRE AND THE SCIENCE OF STUCCO ASSEMBLIES

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For centuries, stucco has stood as one of the most reliable and adaptable exterior finishes in the built environment, valued for its strength, beauty, and proven ability to perform under pressure. Across climates and architectural styles, it continues to deliver timeless aesthetics with exceptional resistance to weather, moisture, and fire.

Yet today's projects demand more than tradition alone. Evolving energy codes, the rise of continuous insulation, and increasing focus on building-envelope integrity have reshaped how stucco assemblies are designed, tested, and installed. Success now depends on understanding every layer of the system—from reinforcement and embedment to accessories and detailing that ensure long-term durability. At ClarkDietrich, we recognize both the heritage and the future potential of stucco. Through our Structa Wire line of engineered lath systems and related accessories, we continue to push performance forward—helping architects, engineers, and contractors build assemblies that are stronger, smarter, and easier to install. The result is greater confidence in every application, from walls to soffits and ceilings.

This e-book brings together insights, research, and real-world examples from ClarkDietrich experts and industry partners. Inside, you'll discover how proper lath selection influences embedment strength, what to know before installing over thin stone veneer, how cladding assemblies determine real-world performance, and so much more.

Stucco's story is one of evolution and endurance. As materials, methods, and climates change, ClarkDietrich and Structa Wire remain committed to helping the industry build on that legacy—advancing the craft of stucco to meet the challenges of today and the opportunities of tomorrow.

CLADDING SYSTEMS DON'T FAIL. ASSEMBLIES DO.

In 2016, a large-scale residential development outside Orlando faced what became a multimillion-dollar remediation. The culprit? Stucco, according to the legal filings. Homeowners cited cracking façades, staining, and water leaks. Within months, siding crews had to replace entire elevations with fiber cement board, and developers across the region took note.

But here's the thing: The stucco itself wasn't the problem.

An investigation revealed misaligned control joints, missing weep screeds, and poor window flashing—mistakes that any building envelope system would struggle to overcome. This wasn't a material failure. It was a detailing failure.

And yet, the perception stuck. Today in Florida and other markets in the Southeast and West Coast, stucco is being edged out by siding systems—vinyl, fiber cement, or composite panels. Builders cite liability concerns and performance issues. But as professionals in the wall and ceiling trade know, **cladding systems don't fail. Assemblies do.** And more often than not, it's the details that make or break the wall. >>>

STUCCO

Stucco is a tried-and-true cladding system, valued for centuries across a wide range of architectural styles—from Mediterranean villas to Southwestern adobe homes and modernist façades. Its enduring appeal lies in its versatility, durability, and ability to provide a seamless, weather-resistant exterior. When properly installed, stucco offers excellent thermal performance, natural fire resistance, and protection against insects and moisture. Beyond function, it is also an artful finish, adaptable to both smooth and textured aesthetics, making it a favorite among architects and builders seeking both performance and timeless visual impact.

Yet, its market share is shrinking. Builders are opting for materials perceived to be "easier" or "safer," especially in light of mounting litigation tied to improper stucco installs. But siding systems are not immune. Failures with vinyl and cementitious panels—buckling, delamination, trapped moisture, and mold—have also surged.

The common thread? Not the material, but the missed details.

ClarkDietrich's Easy Embedment System™ EES makes stucco embedment fast, efficient, and with less skilled labor required, creates a finish that will stand up over time—reducing callbacks and failures due to moisture intrusion from installations with lesser levels of embedment.

WHAT FAILS?

Most wall system issues trace back to five key failure points. These include improperly flashed windows and doors, poor transitions at parapets or decks, missing or misused WRBs, inadequate drainage planes, and the absence of control joints.

Stucco gets a bad rap because its failures are visible—cracks, stains, delamination. But the same core issues apply to siding: hidden water behind lap joints, rot in OSB sheathing, or distorted cladding under sun and moisture stress.

In all cases, it's the "invisible work" behind the surface that determines longevity.

Far from outdated, stucco over wood, steel, and masonry block—with proper lath and reinforcement—remains one of the most robust cladding systems available.

Performance-based lathing products are engineered to ensure full stucco embedment and provide crack resistance and material consistency. When these systems are installed to spec—with appropriate control joints, flashing, and finish tolerances—stucco outperforms many newer materials on the market.

Plus, it delivers:

- A thermal buffer.
- Fewer seams and joints than siding systems.
- Architectural versatility, from knockdown and sand finishes to sharp, modern, smooth finishes. >>>

CRAFTSMANSHIP

What's really at stake isn't just market share—it's craftsmanship. In the race to reduce costs and compress schedules, we've seen a shift away from highly trained plasterers to "all-trade" siding installers, even for stucco assemblies.

That's a risky bet.

True plasterers understand the sequencing, joint placement, curing times, and layering that make stucco last. When you lose that knowledge, you lose the reliability of the system. And, unfortunately, the industry is now paying the price.

TIME TO RECLAIM THE NARRATIVE

The trades that support lath, plaster, and traditional wall systems have an opportunity—and responsibility—to reclaim stucco's reputation.

That means:

- Educating builders on best practices and clear scopes of work.
- Collaborating with architects to ensure detail clarity at openings and transitions.
- Investing in training and quality control, especially for multi-family and high-volume developments.
- Avoiding value engineering that removes critical components.

Because no material can succeed when the envelope around it is ignored or poorly executed.

> "CLADDING SYSTEMS DON'T FAIL. ASSEMBLIES DO. AND MORE OFTEN THAN NOT, IT'S THE DETAILS THAT MAKE OR BREAK THE WALL.

BUILD BETTER—DON'T BLAME THE CLADDING

Stucco isn't going anywhere. Its value in the built environment is time-tested, thermally resilient, and architecturally rich. But its continued success depends on one thing: doing it right.

If we want walls that last—with fewer callbacks—we need to stop pointing fingers at the finish coat and start focusing on the craft behind it. In this industry, the system is the sum of its details.

DESIGNING FOR RESILIENCE: THE CASE FOR STUCCO AND ENGINEERED WALL COMPONENTS

Resilient buildings begin with the walls we choose to construct. As wildfire events and severe weather intensify, the performance of our exterior materials is becoming one of the most important decisions with modern designs.

WHY THE WALLS WE CHOOSE DEFINE OUR RESILIENCE

Across the country, homes and buildings face greater risk from unpredictable weather events and natural disasters, including heavier rain, wildfires, earthquakes, and hurricanes.

The materials we choose for exterior walls matter. Cladding is not just a design decision; it is the protective layer that determines how well a structure stands up when nature turns hostile.

When evaluating exterior walls, three performance factors matter most—fire resistance, water management, and long-term durability. Cement-based stucco performs well against all three when the assembly is designed and installed with mindful intention.

FIRE RESILIENCE: STUCCO'S NATURAL ADVANTAGE

Cement stucco is made from mineral ingredients, Portland cement, lime, sand, and water. Those ingredients are noncombustible, and a properly installed cement plaster assembly can provide a one-hour fire resistance rating as exterior cladding with proper thickness. This type of cladding in wildfire-prone areas is an advantage, where embers and radiant heat are primary threats to structure. Research and live demonstrations have repeatedly shown that noncombustible walls and buffer zones significantly reduce structure ignition risk. >>>

Some stucco assemblies used in wildfire rebuilding incorporate Type X noncombustible sheathing and mineral wool insulation and achieve one- to two-hour fire ratings, giving occupants extra margin during an event. The continuous nature of a stucco finish, when detailed from foundation to eave, reduces the number of gaps where windblown embers can enter and still ignite the structure.

A Live Wildfire Demo at PCBC 2025, conducted by the Insurance Institute for Business & Home Safety (IBHS) and the California Building Industry Association, showed how noncombustible materials and proper Zone 0 landscaping (a 5-foot buffer) protect structures. The mitigated test structure withstood direct flame exposure while the control structure ignited rapidly. In fact, after watching the demonstration at PCBC, the division president of KB Home started the nation's first certified Wildfire Prepared Neighborhood—Dixon Trail—in Escondido, California.

Researchers from the Insurance Institute for Business & Home Safety (IBHS) in conjunction with the California Building Industry Association (CBIA) conducted a live wildfire demonstration during CBIA's annual Pacific Coast Builders Conference (PCBC 2025).

MOISTURE MANAGEMENT: MAKE WALLS THAT DRY

Fire is only part of the equation. Water is another. Stucco is often mistaken for a waterproof surface, but it behaves more like a reservoir. It will absorb some moisture, and therefore it must be able to drain and dry. Industry guidance stresses a robust water-resistant barrier (WRB) behind stucco, combined with a drainage or ventilation strategy, to allow trapped moisture to escape. Attention to flashing, termination beads, and proper transition detailing reduces the burden on the WRB and lowers long-term risk of rot and mold.

Water isn't the only culprit—climate and weather cycles create stress on any finish. Heat, cold, wind, and moisture cycles all affect materials. Cement stucco, when reinforced and cured properly, resists rot, pests, ultraviolet damage, and many of the failures that challenge other claddings. Wood can rot or warp, vinyl can deform in heat, and foam core systems can raise fire concerns when not detailed properly. In demanding environments, stucco offers a proven, mineral-based shell that tolerates long-term exposure.

Stucco is also ideal for helping protect against natural disasters, like earthquakes and hurricanes. According to Bay Area Retrofit's analysis (which includes references to building code for existing materials), stucco provides 200 pounds per linear foot of seismic shear strength compared to wood siding's 100 pounds per linear foot—double the earthquake resistance. And for areas prone to high winds, stucco makes for an excellent cladding option. Unlike panel siding systems that can loosen and tear away during storms, stucco applies directly to wall sheathing, creating a monolithic exterior shell.

PROPER INSTALLATION: THE KEY TO LONG-TERM DURABILITY

A high-performing stucco wall is more than the cement mix. It is a combination of the assembly, the materials that enable the assembly, and the craftsmanship that executes the details. Two product categories are particularly critical: welded wire lath and accessories that terminate and flash/drain the stucco properly. When these elements are designed for embedment, uniform thickness, and movement, the entire wall performs better.

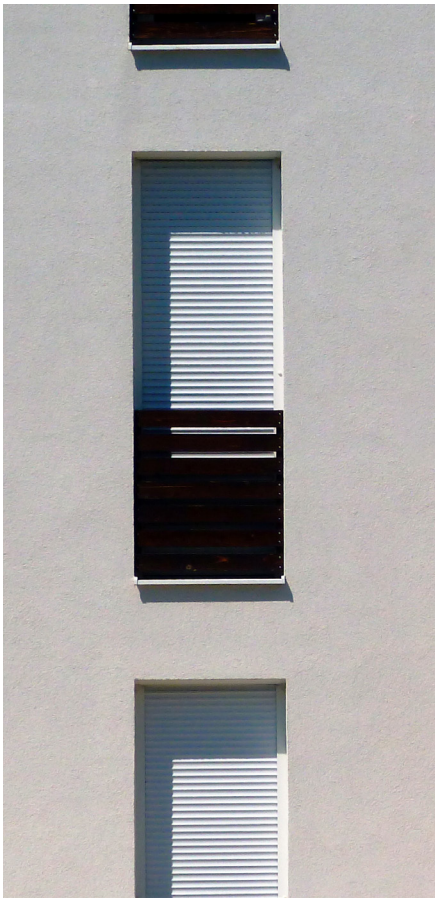
ClarkDietrich's Structa Wire welded wire lath (page 26), for example, is engineered to reduce cracking, improve embedment, and simplify installation. Its profile and furring geometry promote uniform plaster thickness and a reliable mechanical bond to the base coat, which helps the stucco act as a continuous, reinforced shell. Structalath products are available with variations tailored for one- or three-coat systems, and they meet standards for galvanized wire and spacing that support consistent performance. >>>

Equally important, casing beads influence how stucco terminates at windows, doors, and material transitions. ClarkDietrich E-Flange™ casing beads are designed to increase embedment by as much as 70 percent compared to flat flange profiles, allowing more base coat to flow through the profile and form a better mechanical anchor. That kind of embedment reduces the risk of delamination, improves water shedding at terminations, and creates a more durable edge detail.

ClarkDietrich's Easy Embedment System™ (page 25) combines Structa Wire lath and E-Flange casing beads in an approach intended to improve embedment by significant margins and make consistent, repeatable installation easier on the jobsite.

REAL-WORLD GUIDANCE FOR SMARTER CONSTRUCTION

We cannot stop wildfires, earthquakes, or extreme weather, but we can choose materials and components that make a difference. Cement stucco, when paired with engineered welded wire lath and embeddable casing beads, is not merely aesthetic; it is a resilient wall strategy. Those components improve embedment, reduce cracking, promote long-term adhesion, and support proper water management.



CASE STUDY

WILDFIRE PREPARED NEIGHBORHOOD

ENGINEERED FOR FIRE: HOW STUCCO STRENGTHENS NATION'S FIRST WILDFIRE PREPARED NEIGHBORHOOD

California's high fire-risk zones have increased by 168% over the past 15 years, encompassing nearly twice the area of Delaware and placing more communities squarely in what builders call the "red zone." For homebuilders operating in these areas, compliance with Chapter 7A of the California Building Code—which provides "minimum standards… to resist the intrusion of flames or burning embers"—is mandatory. But for forward-thinking teams, code compliance is only the starting point.

Dixon Trail in Escondido, California, sets the bar higher.

Built in a designated high fire hazard severity zone, Dixon Trail became the nation's first Wildfire Prepared Neighborhood, constructed to standards that exceed Chapter 7A requirements. Working alongside wildfire mitigation experts, the team focused on one primary objective: stop embers from turning a single ignition point into a community-wide conflagration.

The 64-home neighborhood addresses wildfire risk at every scale—from five-foot defensible space zones and steel fencing to ten-foot separations between homes. Roofs, doors, and windows are fire-rated. Landscaping is carefully controlled. And central to the neighborhood's fire-resilient design is a material long trusted across the state: stucco.

Stucco is a noncombustible material that, at 7/8" thickness, achieves a one-hour fire-rated wall. According to the Stucco Manufacturers Association, stucco is a preferred exterior siding material by the California Department of Forestry and Fire Protection (commonly referred to as CAL FIRE).

"It is the most economical option for fire resistance. It's naturally fire-resistant, being a cement-based product," said Kevin Wensel, director of product management at Omega Products, the stucco supplier for the Dixon Trail project. "It's monolithic. There's not a lot of openings, outside of what they choose to put into it, so there's no gaps for embers to get through." >>>

At Dixon Trail, stucco was not only used for primary wall surfaces, but also for architectural elements such as foam shutters and eaves. Even the weep screed at the base of the stucco walls plays a critical role in fire protection: Designed with holes no bigger than an eighth of an inch, the screed keeps embers from going up into the wall. The result is an exterior wall assembly that resists ignition from wind-driven embers—the primary cause of home loss during wildfire events.

PERFORMANCE BEHIND THE FINISH: STRUCTA WIRE STUCCO LATH

While stucco provides the fire-resistant exterior, the performance of the system depends on what supports it. At Dixon Trail, that support comes from ClarkDietrich's Structa Wire Structalath 316.

"Structalath is a great product and, in my opinion, a far more superior product than regular woven wire," said Ryan Loutherback, VP of operations at Pro Wall Lath & Plaster, the stucco contractor on the Dixon Trail project. "The furring off the foam allows the cement to get behind the wire for far better embedment, which allows the cement to cure at a better rate." Wensel of Omega Products echoed the advocacy for Structalath, citing it as a "superior product" to woven wire, which is commonly used in the western United States.

"It has better embedment, which helps minimize cracking and helps ensure they get the proper thickness of stucco on the wall," he said.

This even coverage ensures the stucco walls won't have any holes or gaps where embers could enter.

Another big player in ember protection is ClarkDietrich's Structa Wire V Truss for Walls & Ceilings (VTWC), a self-furring welded wire lath that helped achieve thorough stucco embedment on the soffits of the Dixon Trail homes. High winds can push embers upward into the under-eave area, making soffits one of the most vulnerable surfaces on a home during a wildfire event. California Building Code Chapter 7A (Section 704A.2.3) specifically requires that eaves and soffits be protected by ignition-resistant or noncombustible materials. A stucco soffit assembly—supported by VTWC lath—delivers exactly that: a monolithic, noncombustible surface with no gaps for embers to penetrate.

A MODEL FOR THE FUTURE

While Dixon Trail is the nation's first Wildfire Prepared Neighborhood, it certainly won't be the last. The Wildfire Prepared Neighborhood model is already advancing in other parts of the state and will continue targeting communities where wildfire risk and insurance pressures are reshaping the housing landscape.

Beyond Wildfire Prepared Neighborhoods, the lessons learned at Dixon Trail inform a broader strategy: build smarter, build safer, and build for the realities of today's climate. As proven at Dixon Trail, this strategy comes to life with thoughtful site planning, noncombustible materials, and high-performance stucco assemblies reinforced with Structa Wire. Together, they demonstrate that wildfire resilience is not about a single product. It is about a system—engineered, detailed, and executed to protect homes and communities when it matters most.

Structa Wire products featured in the Dixon Trail Wildfire Prepared Neighborhood:

- Structalath 316
- V-Truss Corner
- VTWC Soffit Lath

HOW LATH IMPACTS STUCCO EMBEDMENT

When designing an exterior plaster system, often the focus is on colors, textures, and finishes. While these aesthetic features can be created with hard-coat plaster, they don't address the cladding system's ability to prevent water intrusion and moisture damage to the building.

A stucco cladding system encompasses much more than the finishing material itself, including weather barriers, flashings, control joints, and lath material. In order to ensure the full system performs as it should, it is important to understand how the lathing system will interact with the stucco, particularly the lath's ability to be embedded by the material. >>>

There are several different metal lath materials available on the market today. Here are some of the most commonly used materials and their pros and cons.

DIAMOND MESH LATH

Diamond mesh lath typically comes in sheets or rolls and includes diamond-shaped openings formed by the intersecting metal wires. The lath itself is typically made from galvanized metal, which provides corrosion resistance and durability.

Though building codes dictate the specification of sheet lath by weight, the size of these diamond openings is not standardized. Opening sizes vary but are typically around 3/8" x 1/2" in length and width.

Because of this variability in opening size, pressing wet plaster through diamond mesh lath can be challenging. Plastering contractors often run their plaster "stiff" (i.e., less water in the stucco mixture or use of fibers) to get better surface contact with the diamonds and to assure adhesion. However, this can make it more difficult to fully push the plaster through the diamonds, thereby reducing the level of embedment. While it is possible to achieve acceptable embedment with diamond mesh lath, the applicator must know precisely how to mix plaster to achieve a stiffness ideal for penetrating the diamond surface.

Another consideration with this type of lath is how it is fastened to the substrate. Expanded metal lath that is over-fastened will restrict the passing of plaster through the diamond-shaped openings in the lath, negatively impacting embedment, especially at the edge joints and laps. Paper-backed lath—where a WRB is glued directly to the diamond mesh—increases the challenge of embedment because the WRB can impede the plaster from spreading through the diamonds to get to the backside of the metal lath.

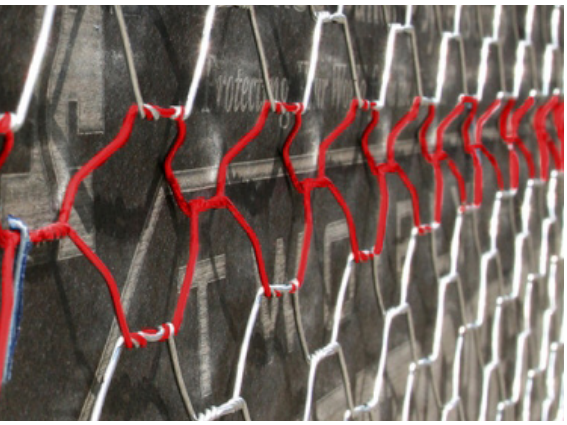
Diamond mesh lath has historically been the option of choice in the Southeast, Northeast and Midwest because these types of products were manufactured in the eastern U.S. and sheets were installed by multiple trades including plasterers and stone masons. Most all lathing and plastering in these regions is paddle-mixed and troweled directly onto the lath. This "hawk and trowel" application method is often used on smaller projects and requires the trowel operator to be skilled in the placement of wet plaster into and through the lath to create embedment.

WOVEN WIRE LATH

Unlike expanded metal lath, which is created by cutting and stretching a flat sheet of metal, woven wire lath is made by interweaving wires in a crisscross pattern to form a mesh.

While woven wire has an open design and provides for easier keying and embedment of the scratch-coat, this style faces different challenges—primarily in maintaining uniformity in furring distance from the wall. >>>

This image shows areas where the lath has been fully embedded on all sides by the stucco—as well as areas (red arrow), where the lath is fully free-floating, with no embedment. The areas where embedment is insufficient are prone to issues from moisture penetration and corrosion.



Woven wire offers little furring. The red area is self-furred, but this is often inconsistent.

Some woven wire lath lacks a self-furring feature in the wire and therefore can't provide uniform separation from the wall. This means the contractor must create the proper 1/4" furring depth using a special furring nail or furring wad. This inconsistency reduces woven wire's ability to remain in the center of the scratch-coat. Additionally, over- or under-fastening woven wire lath can restrict its ability to respond appropriately to the pressure of the trowel when applying the scratch-coat. These inconsistencies can result in areas where embedment may not occur.

In Texas and the Mountain states, a hybrid of diamond mesh sheets and woven wire laths makes up most of the market. This is because much of the work is performed by plasterers who use pumps, while others follow the mixing and troweling traditions often used by the stone masons.

WELDED WIRE LATH

Welded wire lath is made by welding together intersecting wires to create a grid-like pattern with uniform openings. The manufacturing process involves welding the wires at their intersections, which makes the lath more rigid and stable compared to woven wire lath. This rigidity makes it easier to handle and install, as the welded points hold the wires securely in place. Because of the stiffness created in the intersecting welds, the wires stay uniform during the scratch-coat process that provides embedment.

Application issues that do arise are seen when wet plaster mix is hand trowel applied during the scratch-coat. A more "wet" scratch-coat can slump off the wire before it can set. On the other hand, a drier mix may cavitate, or not fully pack around the wires, so it's important to blend a proper water/cement ratio for welded-wire lath applications.

Both welded wire and woven wire lath are popular in the Western and Desert Southwest regions of the U.S., where stucco cladding makes up most of the residential construction and is also used on very large commercial structures. This is because many of the applications in these regions are spray-applied to the lath and troweled into a finish. While both pumping/spraying plaster and hand troweling are allowed by ASTM standards and building codes, pumping/spraying is often preferable for larger projects where volume is needed. This method improves the embedment properties of these types of laths as the spray pressure will penetrate the lath openings.

In general, welded wire lath provides a consistent, evenly furred surface that has openings wide enough to apply a proper plaster mix using the trowel to scratch—then horizontal strokes to smooth in the scratch in preparation for the scoring lines before the brown-coat. This complete scratch-coat base will enhance the brown-coat and ultimately cut down on the number of finish-coat issues.

Also in the welded wire family is V Truss – Walls & Ceilings (VTWC; see page 26), a soffit lath designed to improve the performance of stucco on overhead surfaces. VTWC is ideal in applications where stiffness and control matter, including fire-zone applications where stucco soffits are required.

Welded wire lath is the foundation of ClarkDietrich's Easy Embedment System™ (EES; see page 25), which is comprised of Structa Wire and E-Flange™ Casing Beads and Control Joints. Our EES makes stucco >>>

Welded wire lays down evenly with uniform furring.

embedment fast, efficient, and with less skilled labor required, creating a finish that will stand up over time, reducing callbacks and failures due to moisture intrusion from installations with lesser levels of embedment.

What to learn more? Check out our video white paper on *The Importance of Embedment in Portland-Cement Plaster (Stucco).*

ONE-COAT VS. THREE-COAT STUCCO SYSTEMS

CATEGORY	ONE-COAT	THREE-COAT
Composition	Single base coat + finish coat	Scratch-coat + brown-coat + finish coat
Typical Thickness	3/8"–1/2" total	~ 7/8" total (two base coats + finish)
Installation Time	2–3 days; single-stage application	10–14 days; multiple coats and cure stages
Labor Skill Level	Moderate skill level	Skilled plastering recommended
Weather Sensitivity	Requires careful installation in dry, mild conditions	More forgiving to temperature and moisture
Strength & Impact Resistance	Moderate; less impact-resistant, but can be reinforced	High; thicker base provides superior durability
Crack Resistance	More prone to cracking if mix or curing is inconsistent	Minimal when properly cured
Insulation Performance	Often integrated with foam insulation, improving R-value	Minimal inherent insulation; relies on CI behind system
Moisture Management	Must be detailed carefully to prevent moisture entrapment	Can be designed to drain and dry
Why Choose	Speed, efficiency, insulation integration, and cost savings	Proven longevity, strength, and classic aesthetics
Bottom Line	Streamlined installation for energy efficiency where one-coat is accepted	Code-compliant for traditional stucco work

CASE STUDY

ORLANDO AIRPORT EXPANSION

CLARKDIETRICH EASY EMBEDMENT SYSTEM™ BRINGS EASE AND CONFIDENCE TO ORLANDO AIRPORT EXPANSION

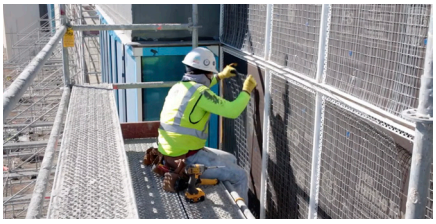
ClarkDietrich assisted in the $4.1 billion expansion of the Orlando International Airport (MCO) South Terminal with use of our Easy Embedment System (EES). The project, dating September 2019 through May 2021, included 164,000 square feet of exterior stucco application.

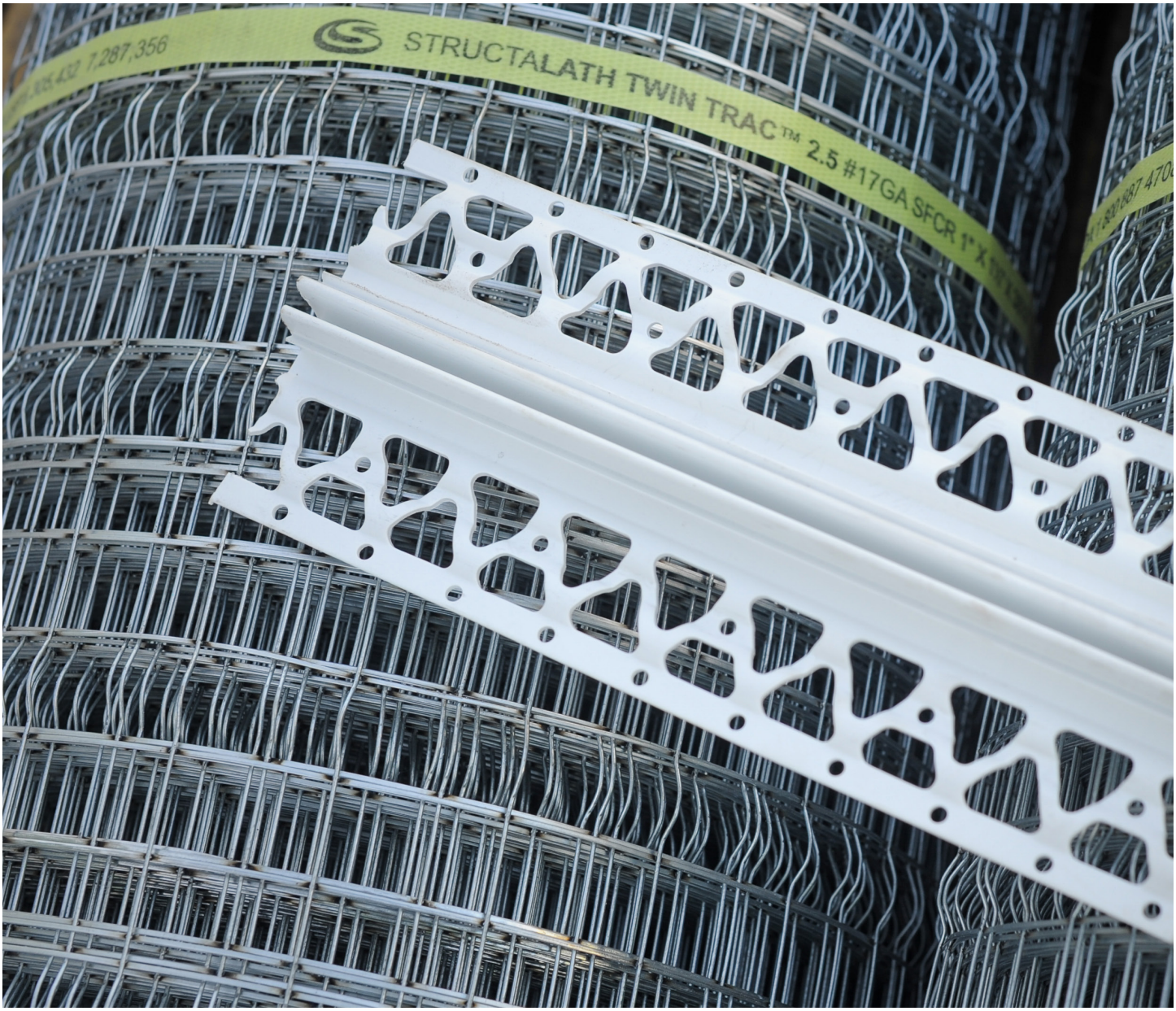
"The project was unique because the design included 'CI-Stucco,' or continuous insulation/stucco, where the rigid insulation was placed between the fiberglass Z-furring that ran horizontal on the wall, perpendicular to the stud framing behind. Therefore, the lathing had to be attached perpendicular to the framing per ASTM C1063, and that meant lath was needed to run vertical across the Z-girts," explained Chris K. Little, senior. product manager, ClarkDietrich. "There is only one metal lath approved to run vertical: Mega Lath by Structa Wire. We incorporated the E-Flange™ designed PVC accessories to complete the system for enhanced embedment."

EES was a perfect fit for this important project because it made stucco embedment fast and efficient on the job. The EES creates a finish that will stand up over time, reducing callbacks and failures due to moisture intrusion resulting from poor embedment. In addition, to help ensure proper installation and answer questions, ClarkDietrich provided technical support on-site at key points throughout the project.

"Several options were provided in the initial drawings, but the EES was chosen for its quality and ease of use," stated Jordan Villa, project manager, SkyBuilders USA, who served as the stucco subcontractor for the project. "The way we were able to bring the roll all the way to the top, hook it to screws, and work it downward made the process quicker. Additionally, having the technical support rep on-site helping us throughout the project, making sure we were doing things correctly, really helped us out."

Learn more about the project and the exact products used here.





5 THINGS TO KNOW BEFORE INSTALLING A LATHING SYSTEM OVER THIN STONE VENEER

When it comes to installing a lathing system for stucco or thin stone veneer, success depends on careful planning and precision. A poorly installed system can lead to cracks, durability issues, and costly repairs. To ensure your project is built to last, it's essential to understand the key components of the process. As such, here are five essential considerations for selecting and installing a high-performing lathing system. >>>

1. UNDERSTAND THE SURFACE PREPARATION REQUIREMENTS

The first step in any successful lathing system installation is assessing the substrate. Is the surface concrete masonry, poured concrete, plywood, OSB, gypsum sheathing, or even existing brick? Each type of substrate demands unique preparation, guided by ASTM standards and local building codes. For example, concrete blocks should be brushed off or may require power-washing.

Additionally, key factors to check include the following:

- **Lath inspection requirements** before the system is covered.
- **Seismic or Wind Zone adjustments** applicable to your area. (This is addressed by architects and engineers.)
- **Manufacturer guidelines** needed to validate warranties. Things like insufficient mortar coverage on the backs of stones or improper stucco thickness can void warranties.

Failing to prepare the surface properly could jeopardize the integrity of the entire system, so start with a thorough assessment.

2. CHOOSE THE RIGHT METAL LATH

Did you know there are three types of metal lath, each with specific best-use scenarios? Your choice should align with the location, environmental conditions, and the type of project you're tackling.

> "A POORLY INSTALLED SYSTEM CAN LEAD TO CRACKS, DURABILITY ISSUES, AND COSTLY REPAIRS.

Here's a breakdown of the options:

- **Expanded Metal Lath (ASTM C847):** Commonly used east of the Rocky Mountains, this diamond mesh lath is ideal for smaller-scale projects and DIY installations. Verify the lath is ASTM-compliant, as import laths have infiltrated the U.S.
- **Woven Wire Lath (ASTM C1032):** Predominant in the Southwest desert and Southern California, woven wire lath works well in arid environments but is best suited for residential applications due to its limitations on commercial structures.
- **Welded Wire Lath (ASTM C933):** A hybrid option that combines an open wire design with the strength of diamond mesh, welded wire (page 26) improves productivity and is gaining popularity in Texas, Florida, and other regions. The manufacturing process of this lath improves wire rigidity during installation. The wires stay uniform during the scratch-coat process for optimal embedment.

Selecting the correct lath weight and style is essential for achieving stability and longevity for the stucco or thin veneer stone. Pairing with V-Truss Corner provides essential durability and crack control at edges and openings.

3. FASTEN LATH PROPERLY TO THE FRAMING

Proper fastening is vital to creating a durable lathing system. The key rule? Fasten the metal lath to the framing members beneath the sheathing, not just into the sheathing. Secure the lath using nails, screws, or staples that meet ASTM C1861 requirements and ensure the fastening pattern follows ASTM C1063.

Follow these ASTM fastening guidelines:

- **Placement spacing:** On concrete block, the pattern is 16" across x 7" down, with anchors set in the four corners and two in the mid-point of the 97" length. Fasteners should be spaced 6–7" apart down the framing. On frame construction, fasten into the framing members only, with the same vertical spacing.
- **Fastener engagement:** Ensure fasteners attach at least three strands of diamond mesh or two strands of woven or welded wire lath for optimal performance. >>>

Using the right fastening techniques—size, placement, and pattern—prevents the system from weakening and ensures proper embedment of the mortar or plaster coat.

4. MINIMIZE LATH OVERLAPS

While overlaps in lath are inevitable, they should be minimized to maintain wall strength and plaster embedment. Overlapping creates areas with twice the metal coverage, making full embedment of plaster challenging.

Here's what ASTM C1063 specifies:

- **Vertical laps:** Overlap by 1."
- **Horizontal laps:** Overlap by 1/2."
- **Maximum overlap:** Shall not exceed 3."

Reducing excessive overlaps ensures the wall remains strong and uniformly coated.

5. DON'T SKIP WEEP SCREEDS AND CASING BEADS

Weep screeds and casing beads may seem like small details, but they play a crucial role in protecting your wall system against moisture damage and cracking.

- **Weep screeds:** Found in ASTM standards C1063 and C1861 and the International Building Code (Chapters 14 and 25), these accessories help condensed moisture to exit the wall, preventing buildup that could compromise the stucco or stone veneer and/or its substrate. These accessories are essential for ensuring long-term wall performance, especially in framed construction. Reminder that code outlines placement of the accessory 4" above ground, and 2" above paved surfaces.
- **Casing beads:** This accessory provides a clean termination point around windows, doors, and other wall openings, ensuring movement isolation and avoiding stress cracks. Recommended best practice would create a 3/8" gap; insert a backer rod and apply sealant over the rod for weather-tightness.

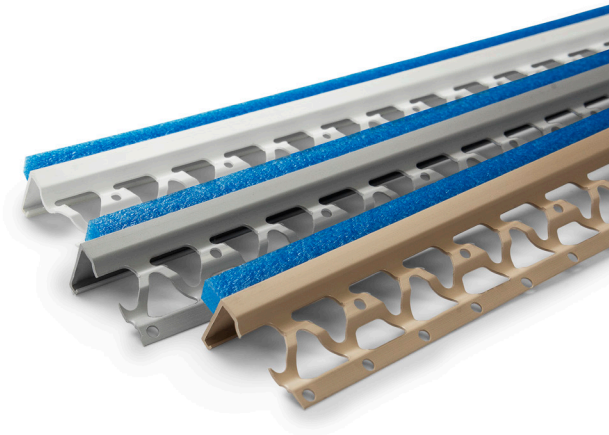
Including these elements in your installation ensures a professional, durable finish that stands the test of time. For an efficient, expert installation, ClarkDietrich's Easy Embedment System™ (page 25) combines all the necessary elements for an ideal foundation in one system, including Structa Wire Lath and BackerBead® with E-Flange™ Casing Beads and E-Flange™ Control Joints.

BRING IT ALL TOGETHER

Proper installation of a lathing system isn't just about following a checklist; it's about combining the right materials, proven techniques, and attention to detail. By focusing on these five essential elements, you'll create a system that's not only durable, but also designed to perform in most any environment.

For additional clarity on building codes or product specifications, consult ASTM standards or reach out to a lathing expert for guidance.

By prioritizing foundation, material selection, and best practices, you'll ensure your wall achieves maximum performance and durability. Your thin stone veneer project deserves nothing less.



BackerBead with E-Flange is a combination PVC casing bead with built-in closed-cell backer rod. Factory-applied, closed-cell backer rod provides a sealed separation gap 1/4" wide where stucco abuts dissimilar materials such as the perimeter of window and door openings per ASTM C1063.

THE EVOLUTION OF CONTINUOUS INSULATION-STUCCO SYSTEMS

AS SEEN IN *WALLS & CEILINGS* MAGAZINE

BY CHRIS K. LITTLE

Portland-cement plaster, aka stucco, continues to have a preferred position in the cladding marketplace for U.S. residential and commercial building. Recent findings from Fredonia Consulting show that stucco is applied to about 20 percent of the exterior cladding market, up 5 percent over the past three years. This demonstrates the public's desire to have their buildings and homes constructed with stucco.

However, lath and plaster have seen a decline in certain markets where stucco or thin-veneer stone walls were poorly assembled, taking in water and then not being able to dry out. These issues are more prevalent in the eastern U.S. and along the Pacific Coast, where 20-plus inches of rainfall annually is common.

In fact, a large portion of the country is now required by code to provide a capillary break behind these "absorptive claddings" to facilitate both drainage and drying. These regulations encompass Climate Zones 1, 2 and 3, which includes most of the Southeastern U.S.; the "Marine" zone along the West Coast; and the "Moist" zone, which includes areas east of Colorado. Section 703.7.3.2 of both the International Building Code and International Residential Code—water-resistive barrier requirements behind where stucco is applied to wood-based sheathings (plywood and OSB)—are divided into separate sections for dry and moist climate zones, with a 3/16" air space or material with high drainage efficiency required in moist climate zones. The building industry is recognizing the enhanced performance this 3/16" ventilated space provides, and specifications for various furring and rainscreen systems are growing in specifications and use. >>>

In 2009, the International Energy Code increased energy efficiency in 2x6 steel-framed walls in commercial construction. Normally, project teams would compensate with more batt insulation inside the wall cavity, but that approach does not consider the thermal bridging produced by the metal or wood framing. When using a correction factor, the actual thermal value is lower than design value. Therefore, the advent of continuous insulation on walls, or the adding of board insulation outside the sheathing, became the new standard CI design in the U.S., though builders in the western U.S. had been constructing homes and buildings this way earlier than 2009. Yet, with stucco applied to continuous insulation, the challenge of lath attachment started to evolve. Some of the approaches now used are described in this article.

FASTENERS USED FOR CI STUCCO

For a stucco cladding on continuous insulation, one must consider the repercussions of mechanically fastening the lath through the 1 to 4 inches of insulation and its associated deflection. Recognizing that 3/4" of cement-plaster weighs 10.3 pounds per square foot, that screw deflection means selecting the appropriate fastener to manage the load. Fortunately, we have guidance from the IRC/IBC on this now, in Chapter 26–Foam Plastics. Multiple tables found there, beginning with Table 2603.12.1—"Fastening Requirements Over Foam Plastic Sheathing to Support Cladding Weight for Steel Framing"—consider the deflection of the fastener based on length and load at the end of the fastener.

> "AS PRODUCT INNOVATION EMERGES, WE WILL SEE REFINEMENT IN THE WAY WE DESIGN AND INSTALL THESE CI SYSTEMS AND, ULTIMATELY, SEE SOME OF THOSE METHODS PRESCRIPTIVE IN THE CODES.

Other factors to consider include thermal transmission through the screws, which is not defined. Yet, innovative materials like non-metallic washers or plastic-sleeved screws demonstrate limiting heat flow. Furthermore, fasteners running through the insulation system can provide a conduit for incidental moisture and must be addressed via re-direction/flashing or sealants and coatings. These solutions will continue to develop as demand for CI-stucco systems remains.

ANOTHER CI-LATH ATTACHMENT

Another common structural design for CI-stucco systems is the use of Z-furring. Z-furring is installed to allow board insulation to be sandwiched in-between the furring to reduce thermal bridging and serve as a substrate for the outboard sheathing or framing to attach the metal lath. In this design, the insulation is fitted in-between the Z-furrings to achieve CI stucco, where the lath fastening approach is more in-line with the traditional ASTM C1063.

For example, if the Z-furring is fastened through an exterior sheathing into the wall framing, spaced at 16" on-center and running vertically in line with the walls, the metal lath—sheets or rolls—would fasten perpendicular to the Z-furring with the same vertical spacing as found in the ASTM standards (7" o/c) down the Z-furrings. The lath's weight selection would be determined by the "allowable span" table found in Table 1 of ASTM C1063-23 for welded, woven or expanded metal laths. If the Z-furring is attached horizontal to the wall, i.e., perpendicular to the vertical framing members, then the lath direction changes to maintain the ASTM C1063 for attachment—"Lath shall be installed with the long dimension at right angles to the framing members..." (Section 7.3.1.3). Currently, I am aware of only one lath product that has an approval to install lath for vertical installation on horizontal framing members. >>>

DRAINAGE PLANES WITH LATH AND PLASTER

Drainage planes are coming, and they make sense with the right systems. These can be furring strips, drainage mats or drainable housewrap over the substrate. However, when metal lath is installed over them, the importance of full 1/4" furring on the lath—be it dimples or v-grooves in the sheet or bends in the wire—this feature must be present.

In-house visual testing by my employer determined that non-furred laths over any drainage mat or wrap does not allow adequate space for plaster embedment into the lath. Furthermore, even listed "self-furred" laths, where the embossed furring becomes compromised, can make scratch-coat embedment difficult to achieve. However, that same visual testing showed welded-wire lath with uniform self-furring of 1/4" enhanced the ability to embed the scratch-coat on entangled mesh drainage mats. The need to embed the metal lath does not go away when a drainage plane is integrated into the CI-stucco wall.

In conclusion, the use of CI-stucco claddings will continue to gain preference in the marketplace. As product innovation emerges, I believe we will see refinement in the way we design and install these CI systems and, ultimately, see some of those methods prescriptive in the codes. By doing so, inclusion into codes and standards make CI stucco a viable cladding in the next generation.

FASTENERS AND STUCCO WALLS: GETTING IT RIGHT WITH ASTM STANDARDS

Fasteners might be small, but they do a lot of heavy lifting when it comes to stucco installations. If they're the wrong type or spaced incorrectly, even the best plaster won't stop cracks or failures. But when the right fasteners are used—and installed according to the standards—the wall earns the durability and strength it was designed for.

Whether you're fastening sheets of expanded metal lath or rolls of welded wire lath, the same ASTM rules apply. ASTM C1861 tells you which fastener to use; ASTM C1063 tells you how to place it. Together, both uphold the strength and longevity of stucco walls.

A WALK THROUGH HISTORY

ASTM C1063—the installation playbook—traces its lineage back to 1986, succeeding ANSI A42.3-71 to bring a dedicated standard for lathing and furring installation in cement-plaster systems. Its roots go deeper: the 2003 edition (C1063-03) refined materials and fastening rules, embedding it firmly into modern stucco practice. Today, its 2024 version (C1063-24) continues to guide installation.

In contrast, ASTM C1861 is relatively new. First introduced in 2017, it gave fasteners and lath accessories their own specification, highlighting durability, corrosion resistance, and material performance. Updates have followed, with the latest edition in 2023 (C1861-23a). Together, C1063 governs installation, while C1861 provides clarity on the material side—two standards working in tandem.

ASTM C1861: DEFINING THE FASTENER

Think of C1861 as the DNA of the fastener. It dictates what qualifies to work in a stucco system. It covers screws, nails, staples, and power-driven pins, and insists on corrosion-resistant coatings (like zinc or stainless steel), sufficient head size and shank dimensions, and the strength needed to hold wire lath and attached plaster without shifting or corroding.

Simply put: C1861 guarantees that the fastener itself can be trusted. >>>

> FASTENERS MIGHT BE SMALL, BUT THEY DO A LOT OF HEAVY LIFTING WHEN IT COMES TO STUCCO INSTALLATIONS.

ASTM C1063: INSTALLING THE FASTENER

If C1861 is the fastener's blueprint, C1063 is the master plan for field application. It tells you that on wood studs, space fasteners every 6"; on steel studs, every 7"; and on concrete or masonry, up to 16" apart. It also prescribes proper embedment depth (3/4" into wood, 3/8" beyond steel, or adequate bite into masonry), plus rules for reinforcing corners, securing laps, and snugging edges.

In short: C1063 ensures fasteners are applied where and how they should be.

WELDED WIRE LATH: BUILT FOR EASE

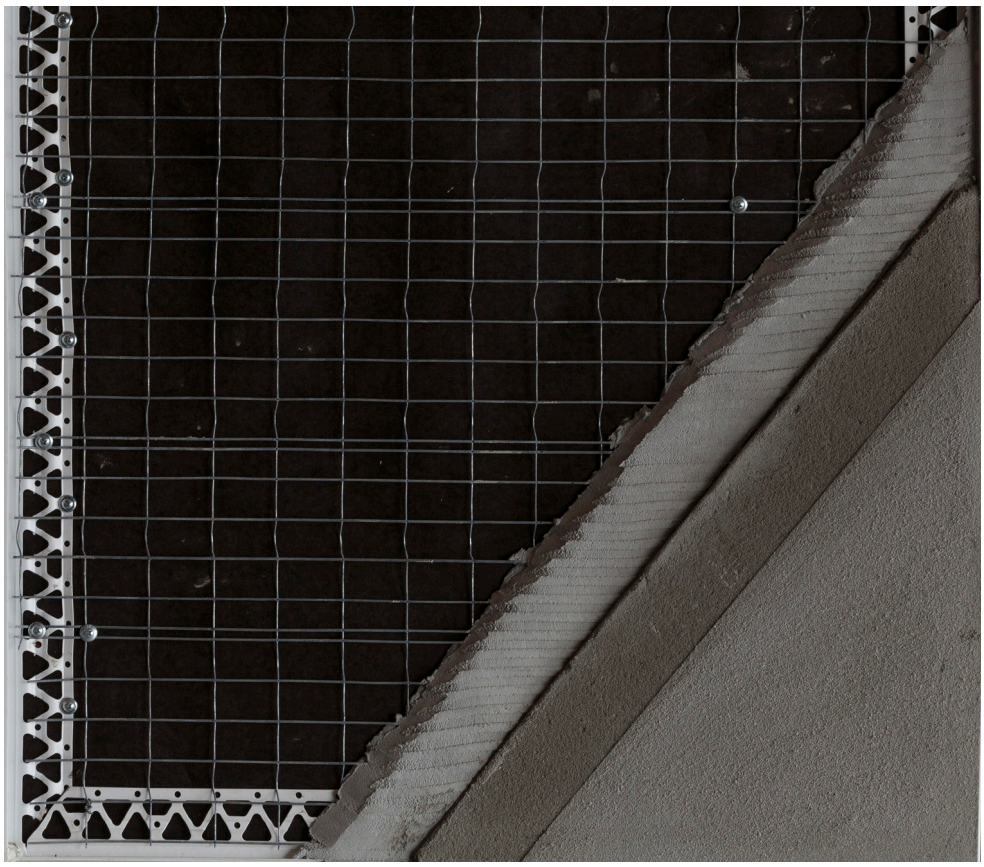
Fastening doesn't have to be guesswork. Structa Wire's welded wire laths (page 26) are engineered with double-wire tracks that make fastening nearly foolproof. Each fastener secures to two wires at once. It spreads the load, improves bonding, cuts down misses, and delivers a wall skeleton that's tidy and robust.

Of course, what goes above and below that skeleton—the water-resistive barrier, plaster thickness, finishes—is governed by code. The lath and fasteners provide the framework; the code defines the building envelope.

THE BOTTOM LINE

Fasteners are unsung heroes, but they decide whether a wall stands firm or fails. Skimping on specs or spacing leads to loose lath, cracked plaster, and costly callbacks. Do it right: Use the correct fastener material (C1861) and install it correctly (C1063). And paired with Structa Wire's intuitive lath, you've got a wall that holds for decades.

Want to learn more about fastening welded wire lath, training opportunities, or see product specs? Contact the ClarkDietrich team and we'll help you build walls that last.

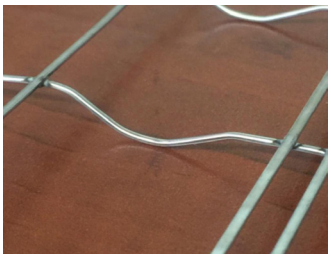


PRODUCT HIGHLIGHTS

EASY EMBEDMENT SYSTEM™

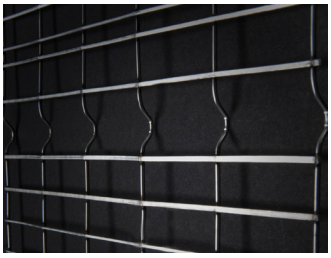
ClarkDietrich's Easy Embedment System (EES) delivers expert stucco installation without a crew of experts. EES creates a finish that will stand up over time, reducing callbacks and failures due to moisture intrusion from installations with lesser levels of embedment.

- Structa Wire lath products—which are rolled out continuously across the wall with no vertical seams and no stapling or wire tying required on the horizontal laps—ensure that more stucco mix gets to the wall using the same application techniques as standard lath sheets.
- The raised flanges of the E-Flange™ profiles allow for easier tying of accessories to the lath.
- The BackerBead® equipped profiles feature an integrated, closed-cell backer rod, eliminating steps and maintaining consistency by creating a uniform caulking gap to protect from water intrusion and provide superior quality in gap control, caulking depth, and coverage.



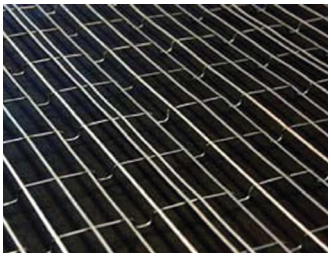
STRUCTALATH

A welded wire lath engineered to enhance the performance of stucco, Structalath reduces cracking and increases stucco embedment. Structalath rolls are easy to install, enhancing worker satisfaction and productivity. Its furr depth of 1/4" provides for ideal stucco embedment. Structalath 316, featuring a reduced furr depth of 3/16" for use in one-coat systems, is available on the West Coast.



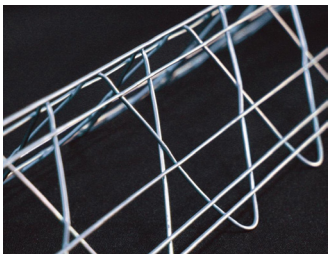
TWIN TRAC

Designed especially for commercial construction, Twin Trac has all the enhanced features of regular Structalath with the addition of eight secondary cold-rolled longitudinal wires that add strength to form a 'track' for convenient attachment. The innovative reinforcing lath simplifies the attachment of lath to wood and steel studs and can be substituted wherever 2.5 metal lath has been specified. Also available in a reduced furr version (Structalath Twin Trac 2.5/316) for 1/2" stucco systems.



MEGA LATH

A self-furring welded wire that provides heavy-duty reinforcing for both stucco and stone installation, Mega Lath provides easy attachment for both wood and steel construction. Specifically designed for stucco applications that require extra reinforcing, Mega Lath is made with less metal but has more strength than any other product available—including sheet lath products—and is engineered to meet weight requirements for architectural stone product installations. Mega Lath can be used as an alternative to 3.4 lb/yd^2 diamond mesh metal lath specified in ASTM C847.



V TRUSS FOR WALLS & CEILINGS

V Truss for Walls & Ceilings (VTWC), also known as Structa Rib Lath, is designed to improve the performance of stucco on overhead surfaces. It is a self-furring welded wire lath for use as an alternative to 3.4 lb rib metal lath. VTWC features key elements that work together to provide easy installation, decreased fall-out and a smooth, crack-free soffit.

RESOURCES

To stay up-to-date on the latest code changes, best practices, and product innovations, we recommend connecting with one or more of the following organizations:

Association of the Wall and Ceiling Industry (AWCI)

British Columbia Wall & Ceiling Association (BCWCA)

EIFS Industry Members Association (EIMA)

Florida Lath & Plaster Bureau (FLAPB)

Concrete Masonry & Hardscapes Association (CMHA)

Rainscreen Association in North America (RAiNA)

Stucco Manufacturers Association (SMA)

Technical Services Information Bureau (TSIB)

Texas Lath & Plaster Contractors Association (TLPCA)

Western Wall & Ceiling Contractors Association (WWCCA)

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