



ARCHITECTURAL WALL PANELS | SEPTEMBER 2019

KuraStone Installation Guide

NICHIHA ARCHITECTURAL WALL PANELS
INSTALLATION GUIDE
KURASTONE™

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**GENERAL INSTRUCTIONS FOR
KURASTONE™**

This guide is intended to provide the key information needed to successfully install Nichiha's KuraStone Architectural Wall Panels (AWP). It applies to StackedStone, LedgeStone, and Sill Chiseled. Further installation information and technical resources such as animated instructional videos, three-part specifications, product testing and certifications, architectural details, and other technical documents are available on our website: Nichiha.com/resource-center.

This install guide's effective date is **September 2019**. Install products in accordance with the latest installation guidelines and all applicable building codes and other laws, rules, regulations and ordinances. Review all installation instructions and other applicable product documents before installation.

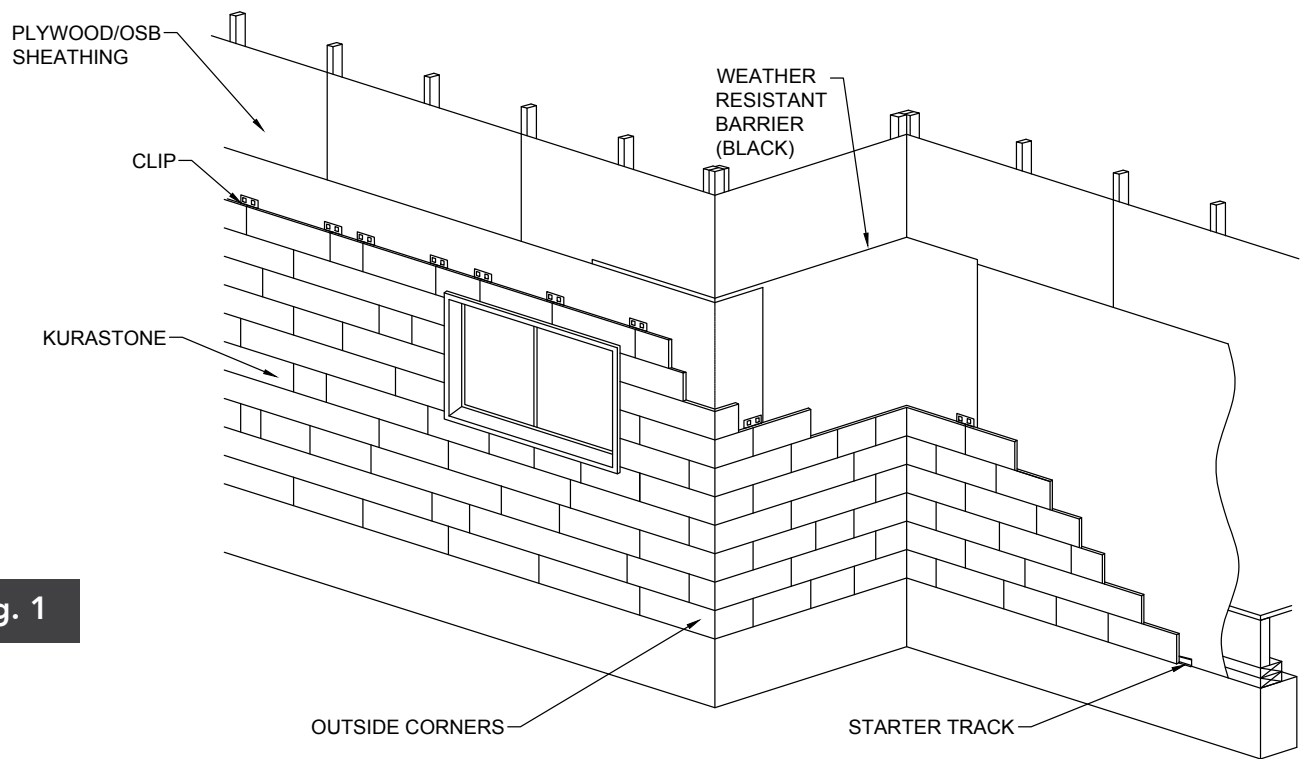


Fig. 1

BASICS OF KURASTONE™

KuraStone pieces are designed with no dedicated top or bottom, so they can be reversed to ensure a random pattern. KuraStone may only be installed in a horizontal orientation.

KuraStone Wall Pieces

Unlike AWP1818 and 3030, KuraStone wall pieces are not ship-lapped, nor do they have sealant gaskets on any of their edges. KuraStone pieces feature grooves on four sides. Clips and Starter Track can be inserted into any side.

StackedStone and LedgeStone wall pieces are 150mm (nom. 6") in height and come in three lengths: 260, 390, or 650mm (l) (nom. 10-1/4", 15-3/8", 25-5/8").

When installing, randomly use the different lengths in order to stagger seams on the wall. One pack contains three Large, two Small, and two Medium pieces.



StackedStone



LedgeStone

KuraStone Outside Corners

Each KuraStone Outside Corner is manufactured with a short and a long side. The inside width dimension of the short leg is 5" (125mm), and the inside width of the long leg is 11 5/8" (295mm). Flip Corners on each course so that a long side always aligns with a short side and the pieces alternate in orientation.



KuraStone Sill Chiseled

KuraStone Sill Chiseled can be used as a transition or border detail between Nichiha products, as well as a window sill detail.

Sill Chiseled pieces are 600mm (23-5/8") long, 47mm (1-7/8") high at the back face, and 57mm (2-1/4") thick.



CONSTRUCTION REQUIREMENTS

Prior to Nichiha installation, closely inspect the exterior wall substrate and correct any problems. Walls that are out of plumb, for example, can negatively impact the installation quality of AWP. Nichiha Spacer may be used in conjunction with panel attachment hardware if necessary to ensure an even substrate.

StackedStone and LedgeStone pieces can be installed on braced wood or steel stud (18 GA or heavier) construction spaced at 12" (300mm) to 24" (600mm) o.c. (max). Walls must be vertical. No sloped walls or horizontal applications (soffits).

It is **required** that 15/32" or greater plywood sheathing or APA rated 7/16" or thicker oriented strand board (OSB) be used to ensure fastener holding power.

CMU/Concrete walls require furring (2x lumber or 18 GA, shaped steel) and min. 7/16" OSB or plywood.

Per the National Building Code of Canada, sheathing must be minimum 4-ply 12.5mm CSP or 12mm OSB, oriented horizontally with blocking to ensure perimeter fastening every 150mm o.c. Sheathing nails must have a minimum length of 63mm. Conform to Table 9.23.3.5-B-C of NBCC 2015. Refer to CCMC Report 14132-R for NBCC Part 9 compliance. **Contact us** for a copy of the engineering evaluation for CCMC approval and Part 4 projects.

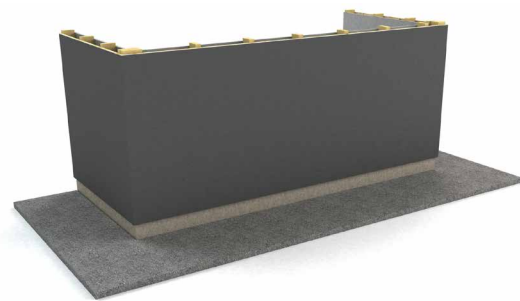
A WRB is required when installing KuraStone. Use a dark or black fluid-applied WRB over sheathing or use a code-approved WRB covered with a layer of 15-lb. black felt as defined by the 2015 IBC/IRC. Refer to local building codes. Nichiha is not liable for water infiltration.

LIMITATIONS, TECHNICAL REVIEWS AND SPECIAL APPLICATIONS

Natural limitations on product usage are inherent to any cladding product's design, physical characteristics, and attachment system. Nichiha KuraStone is intended as a low-to-mid-rise cladding product and is not for use on high-rise buildings.

Any project of more than three stories or 45 feet, as well as those located in high wind coastal areas (ASCE 7-10: Exposure Categories C and D with Ult. Wind Speed in excess of 130 mph), requires a technical review by Nichiha to evaluate feasibility via our Technical Design Review (TDR) process. In Canada, KuraStone is limited to regions where the hourly wind pressure $Q_{1/50}$ is less than 1.00 KPa (the highest wind pressure by which the panels were tested). By evaluating a project's unique criteria and design, we can reference independently test-derived and calculated wind load performance data for our products to determine whether and how the panels can safely be installed on the project. Contact your local rep or Nichiha technical department for details or to initiate a TDR.

AWP are not to be used in any applications/uses not specified or described in this installation guide or other Nichiha technical documents. Any such use shall not be backed by the product warranty.



Use a dark WRB applied to the wood sheathing. KuraStone joints are butt joints and white WRBs can show through.

PRODUCT INSPECTION

Inspect all products thoroughly prior to installation. Do not install any product which may have been damaged in shipment or displays damage to the finish coatings.

Should you have a question about your order, contact your local dealer or Nichiha Customer Service toll-free at 1.866.424.4421.

STORAGE & HANDLING

KuraStone MUST be stored flat and off the ground prior to installation. Indoor storage of siding on pallets is recommended.

KuraStone MUST be kept dry and stored in a covered area or covered with wrap before installation.

Carry products on edge. Do not carry or lift KuraStone flat. Improper handling may cause damage or cracking.

Nichiha is not liable for damage caused by improper storage or handling.

MINIMUM CLEARANCES

Always maintain a minimum 2" (50mm) clearance between KuraStone and steps, driveways and decking products.

When installing KuraStone pieces, leave a minimum of 6" (150mm) from soil grade or 2" (50mm) from hard surface to the bottom of the starter track and pieces.

At roof and wall junctures and in accordance to roofing manufacturer's instructions, flashing and counterflashing is required. KuraStone pieces must be installed with a minimum 1" (25mm) clearance from roofing.

For interior applications, KuraStone may be installed directly over floor level.

CUTTING¹

As with any natural stone, masonry, or concrete based product, when cutting, drilling, sawing, sanding, or abrading fiber cement cladding, proper safety measures must be taken due to the potential for airborne silica dust, an OSHA-identified hazardous substance that can pose serious medical risks.

Always cut KuraStone pieces outside or in a well-ventilated area. Do not cut KuraStone in an enclosed area.

Always cut pieces from the front to minimize chips on face.

Always wear safety glasses and NIOSH/OSHA approved respirator with a rating of N, O, or P 100. Carefully follow the respirator manufacturer's instructions as well as applicable governmental safety regulations concerning silica. Refer to Nichiha's SDS for more information.

Use a miter saw with a diamond-tipped fiber cement or masonry blade when cutting KuraStone. Connect the saw to dust collecting vacuum with HEPA filter.

1. See Silica Dust Warning on back cover page.



FASTENING

Corrosion resistant screws such as stainless steel or hot-dipped galvanized wood screws appropriate to local building codes and practices must be used to fasten KuraStone Clips and Starter Track to wood sheathing. Nichiha is not liable for the corrosion resistance of fasteners. Do not use fuel-cell, pneumatic, powder-actuated, or aluminum staples, nails, or fasteners that are not rated or designed for intended use.

Use a minimum 3/4" (20mm), fully-threaded, #8 or greater wood screw. **DO NOT USE NAILS** for fastening KuraStone pieces. *Fasten each clip with two screws.*

FINISHING & MAINTENANCE

Use exterior-grade, high-quality sealant that complies with ASTM C920 for all gaps that require filling with sealant. Follow manufacturer's written instructions for use.

All field cut edges must be covered with exterior acrylic latex primer or paint such as Kilz Premium.

Any dents, chips, scratches, etc. on KuraStone™ must be filled with exterior-grade cementitious filler or patching. Follow manufacturer's instructions for use.

INSTALLATION HARDWARE

KuraStone Clips, Starter Track, and Spacer can be used with all KuraStone pieces. See all Nichiha [hardware and accessories](#).

Ultimate Starter Track / FA700

Ultimate Starter Track has pre-drilled fastener holes spaced approximately 2" (50mm) o.c. Starter Track also features weep holes spaced approximately 2" o.c. Starter Track pieces are 10 feet (3030mm) long. KuraStone pieces must sit flush with the Starter Track.



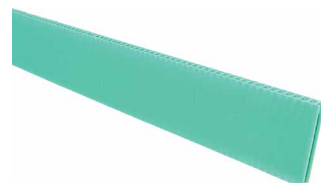
KuraStone Clip / JE 720

The JE720 Clip creates a 10mm air/drainage cavity between the sheathing and KuraStone pieces. It can be used either horizontally or vertically on all KuraStone pieces. Clips are placed at each vertical joint and at the center of the bottom of each individual piece.



10mm (FS1010) Spacer

The 10mm green plastic Spacer is used to ensure correct rainscreen depth and panel stability where clips cannot be used and face fastening is required. The 5mm Spacer (FS1005) is paired with 5mm hardware (Sill Chiseled Clips - see page 15). Spacer is 48" (1220mm) in length.



KURASTONE INSTALLATION

LAYOUT PLANNING

Lay out piece placement by size: Large, Medium, and Small conceptually on paper or physically set/arrange pieces on a flat surface prior to installation. With the three different piece sizes, none have a dedicated top or bottom and can be reversed. Further, among the Large pieces, there are six finish patterns, among Medium pieces three finish patterns, and the Small pieces have two patterns. All of this variety enables creation a natural, randomized look without a complex prescriptive installation sequence.

Create a stair-step-like stagger with large, medium, and small pieces in each course. Define a pattern going up the wall so that the 4th or 5th course is the same as the first.

INSTALLING ULTIMATE STARTER TRACK

The Nichiha Ultimate Starter Track (FA700) must be level and attached at a minimum of 6" (150mm) above finished soil grade or per local building codes (use a level to verify). When installing over a hard surface such as driveways or sidewalks, leave a 2" (50mm) clearance.

For interior applications, KuraStone may be installed directly at floor finish level.

Essential Starter Flashing is an optional accessory to pair with Starter Track to help complete the system by hiding clearance gaps.

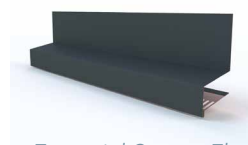
Fasten Starter Track every 8" (200mm) o.c. into sheathing and over WRB. Starter Track should end 1/2-1" (13-25mm) from the outside corner edges.

Fasten Starter Track with corrosion resistant #8 or greater fully-threaded pan-head screws. DO NOT USE NAILS. (Figure 17)

Fig. 16



Fig. 17



Essential Starter Flashing

INSTALLING FIRST COURSE

KuraStone wall pieces do not have a dedicated top or bottom. Flip pieces as needed to ensure the stone pattern appears random and courses do not repeat within four or fewer courses.

Place the first course of pieces onto the Ultimate Starter Track.

A rubber mallet or block of wood may be used to seat the pieces firmly in place and tighten. Do not hammer directly anywhere on the KuraStone pieces, as direct contact may cause cracks, gouges, or chipping.

Fit pieces tightly together on both horizontal and vertical joints, ensuring the piece edges are properly butted together. Set KuraStone by tapping the edge with a block of wood until the piece fits tightly.

Attach a Clip at the top of all vertical joints using two screws each. Use the claw end of a hammer to set the Clip tightly in place before fastening. (Figure 18)

Add a Clip over the center of large pieces. Fasten each clip with two screws. (Figure 19)

Ensure the first course is level. (Figure 20)

Fig. 18



Fig. 19



Fig. 20

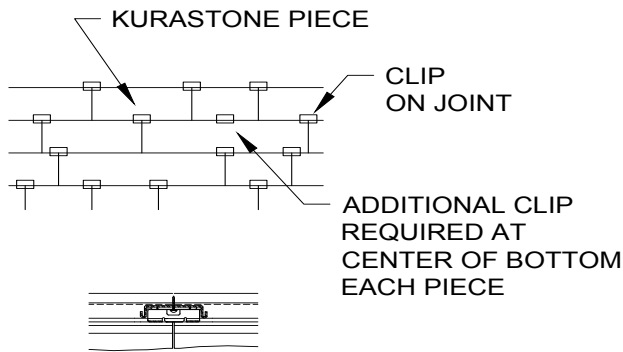


INSTALLING KURASTONE COURSES

Place a Clip at the top of each vertical joint, and place an additional Clip at the center of the bottom of every piece as needed. This is especially important with large pieces.

Attach using appropriate screws, with two per clip.

Fit the bottom groove of the piece tightly into the Clip below it and continue installing courses in accordance with these instructions. (Figure 21)



CLIP MUST BE AT THE CENTER OF THE JOINT

Fig. 21

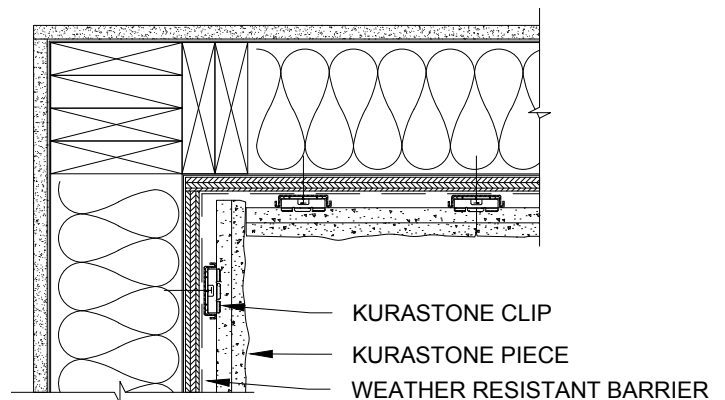
INSIDE CORNERS

At inside corners, KuraStone wall pieces can be butted together.

Wall pieces can also be mitered to create a sharp 90 degree angle.

Attach Clips at the nearest joints to the inside corner and within 2-3" (50-75mm) of the inside corner on both sides. (Figure 22)

Fig. 22



OUTSIDE CORNERS

StackedStone and LedgeStone

Do not pre-install all the KuraStone Outside Corners first. Install them at the same time as the same-coursed pieces as regular work progresses in either direction and upward with each new course. (Figure 23)

Install the first Outside Corner and butt tightly to the adjacent KuraStone wall piece (if present). Attach a Clip at the top of the vertical joints on both sides of the Corner, as well as a Clip 2-3" (50-75mm) from the outside corner on the long return side. (Figure 24)

When cutting pieces is necessary, cut the adjacent KuraStone wall piece, not the Outside Corner piece. (Figure 25)

Flip Corners on each course so a long side always aligns with a short side and the pieces alternate in orientation as they are stacked. (Figure 26)

Fig. 23



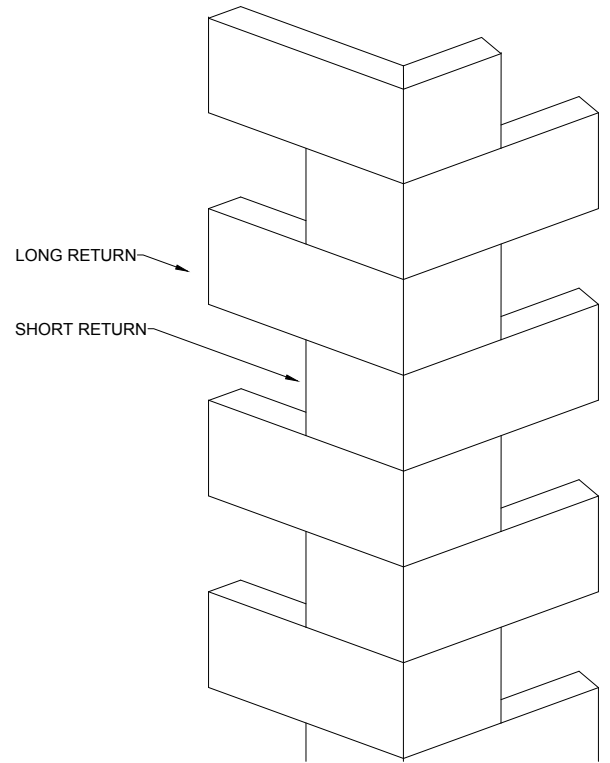
Fig. 24



Fig. 25



Fig. 26



BORDERS & SHORT RETURNS

Outside Corner pieces may be used to clad small recess returns to the wall or at transition locations where a finished/border edge of KuraStone is needed.

Cut either the small leg/return or the long one of a KuraStone Outside Corner to the needed depth dimension. Alternate between piece alignments as in Figure 26 as installation progresses from low to high (Figure 27).

If the cut/return leg is deep enough to fit a Kurastone Clip, include one there as well as at the corner on the face/long leg.

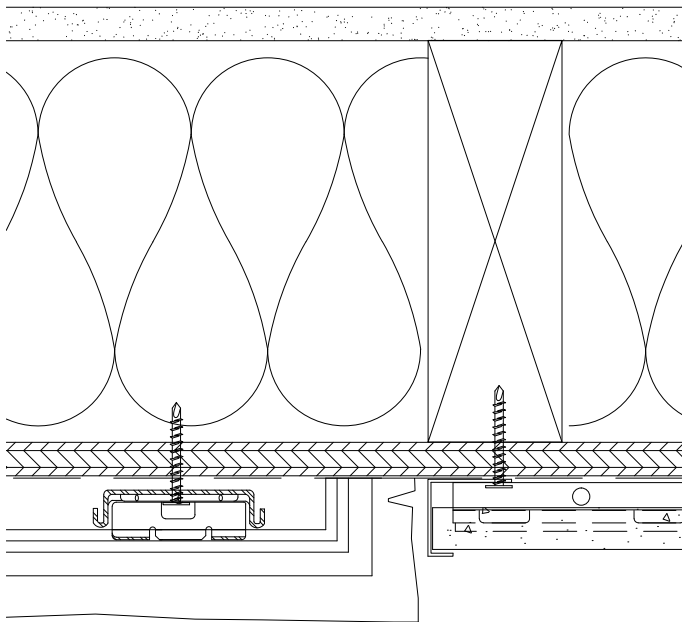
MULTI-STORY BUILDINGS

Where KuraStone is to be stacked more than three stories without breaks or offsets, add a 1/2" (13mm) horizontal/compression joint every two floors or 20 feet (6.1m). For example, a 40-foot application of Kurastone on a 4-story structure must have a compression break at the third floor line (at the elevation mid-point).

When reaching the floor line, install the last course per the *Installing the Last Course* section and then install Starter Track at least 1/2" (13mm) above this course. Proceed with KuraStone installation normally. Flashing is optional as KuraStone is open-jointed, but do not caulk the horizontal/compression joint (Figure 28).

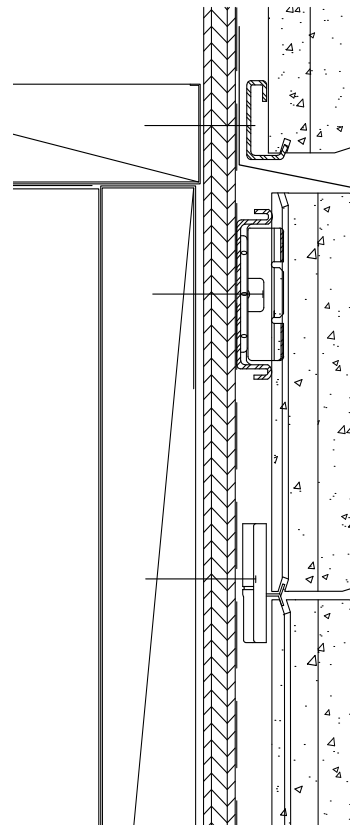
If desired, Sill Chiseled may also be incorporated at the horizontal joint.

Fig. 27



A field modified KuraStone Outside Corner at a vertical transition joint with Nichiha AWP utilizing J-Mold trim.

Fig. 28



Incorporate a Horizontal/Compression Joint Detail every two floors at floor framing with a minimum 1/2" (13mm) break between KuraStone and Starter Track.

INSTALLING THE LAST COURSE

Install KuraStone pieces in moderate contact with any soffit or ceiling. Soffits or ceilings should be installed first.

To avoid narrow strips at the top of the wall, pre-measure the height of the wall to be covered and set the starting point level accordingly, based on the number of courses of KuraStone and their dimensions.

Cut pieces to fit the top row height.

Attach Clips vertically on the side grooves* of the pieces at all the joints.

*Outside Corner side edges are not grooved: Add 10mm Spacer (Figure 29) and face fasten Corner pieces at the top of the wall 1" from vertical edges (Figure 30).

Face fasten the edge of next piece (Figure 31) and proceed to the right with Clips secured to the grooved vertical edges of regular KuraStone pieces (Figure 32).

-or-

Add 10mm Spacer along the top of the wall. Pre-drill holes through KuraStone pieces and face fasten 1" from corners/joints and at mid-point of large pieces.

Fig. 30



Fig. 31



Fig. 29



Fig. 32



DOOR & WINDOW OPENINGS & TRIM

Appropriate flashing and waterproofing measures must be used to prevent moisture penetration on all door and window openings. Refer to local building codes and window, door manufacturers for best practices.

Double-sided butyl tape is highly recommended at door and window flanges or around trim, applied prior to installing the WRB.

Opening Top

Install Ultimate Starter Track over windows and proceed as specified in the *Installing First Course* section.

When Starter Track cannot be used, such as when the pieces above the opening are cut, install a Nichiha Vertical Starter Track or L-angle with a 1/8" gap from the door or window trim to support pieces.

Make sure the channel is level before installing KuraStone pieces. (Figure 33)

Opening Sides & Trim

Install KuraStone to butt up to the jamb/trim in moderate contact. (Figure 34)

Opening Bottom

Install pieces to butt up to sill or trim in moderate contact and follow the steps as described in *Installing The Last Course*. (Figure 35)

Fig. 33

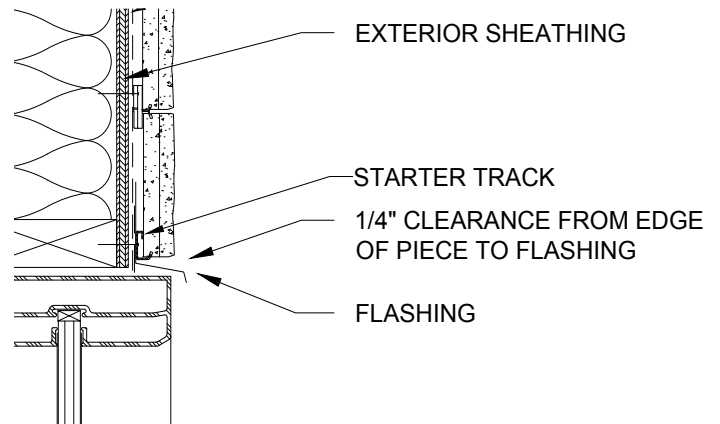


Fig. 34

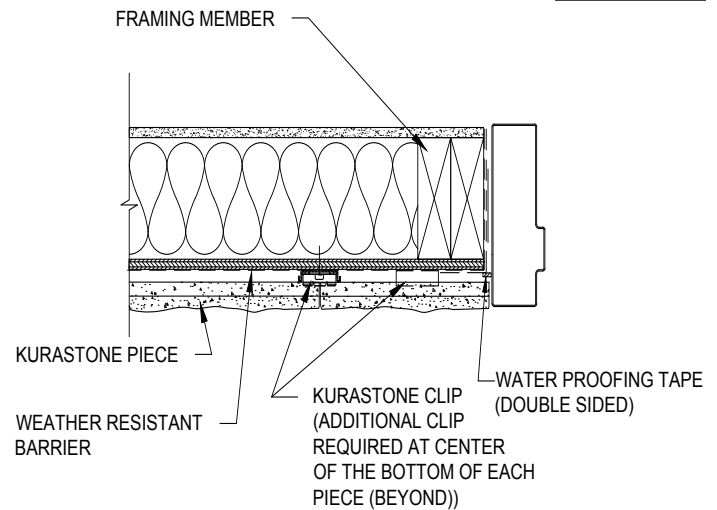
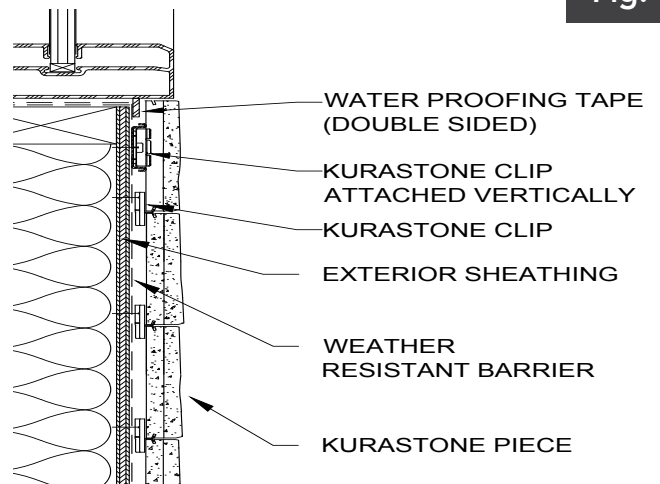


Fig. 35



SLOPED GRADE - KURASTONE BELOW STARTER TRACK

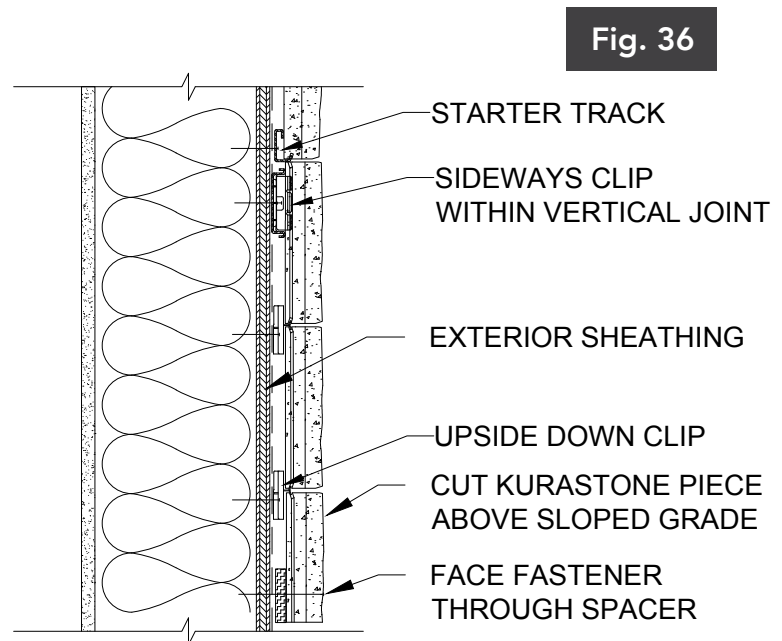
Where grade is sloped, begin with Starter Track at lowest possible continual level line and install above it as directed in this guide. To clad below Starter Track and to scribe to angled grade, take the following steps:

Below the Starter, if installing more than one course of panels, install the full-sized course butted up under the Starter and fasten upside-down Clips underneath, with the base of every vertical Kurastone joint spanned by a Clip. Also install Clips within/between the vertical joints (as in *Installing Last Course*) into the side grooves of the KuraStone pieces.

Add the next courses and fasten upside-down Clips under vertical joints and at mid-points of large pieces down until the final row/course. Cut/scribe panel to required angle. Face-fasten the bottom/cut course edges (1" from vertical joints and panel edges) with backing corrugated Spacer. (Figure 36)

Maintain the required minimum clearances above grade: 2" (50mm) above hardscape, 6" (150mm) above soil. Paint, prime, or otherwise seal all cut, exposed panel edges. Clean panels after cutting with clean, dry cloth to remove dust.

If installing over a masonry/CMU foundation, furring is required. This should be taken into consideration when planning the depth of the exterior wall and cladding above so that the entire wall will have a uniform depth.



KURASTONE SILL CHISELED

GENERAL

KuraStone Sill Chiseled can be used as a horizontal transition or border detail between Nichiha products, as well as a window sill detail. Do not use Sill Chiseled as a drip edge above windows or doors.

Sill Chiseled must be installed on a minimum 7/16" plywood or OSB sheathing over braced wood or steel stud (18 gauge or heavier) construction spaced at a maximum of 24" (600mm) o.c.

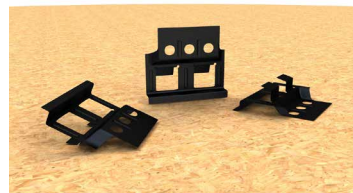
Sill Chiseled Clips are included with the Sill Chiseled pieces. These are 5mm rainscreen clips and need to be shimmed using 5mm Spacer to match the 10mm rainscreen space created by KuraStone Clips and Ultimate Starter Track.

TRANSITIONS AND BORDERS

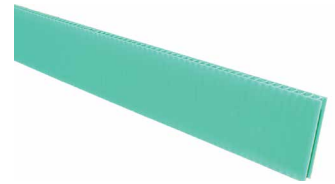
For installations above KuraStone, at the transition/border level, place each Sill Chiseled piece on top of the KuraStone so that the grooves fit securely into the KuraStone clips. Attach two KuraStone Sill Chiseled clips over 5mm Spacer above each piece, one on each side within 2" (50mm) from the ends. Fasten each clip with two screws each.

Where Sill Chiseled pieces butt together, moderate contact is appropriate. No sealant is necessary at butt joints. Mitered corners must be applied using a polyurethane adhesive to join miters together. Make certain all exposed edges are sealed with exterior latex paint or primer.

When installing Nichiha panels or lap siding above Sill Chiseled, the use of a corrosion-resistant flashing is needed for aesthetic reasons. The flashing must be galvanized, anodized, or PVC coated. Leave a 1/4" gap above and below the flashing so there is at least 1/2" (13mm) between the siding and Sill Chiseled. Do not caulk this gap or use raw aluminum flashing. (Figure 37)

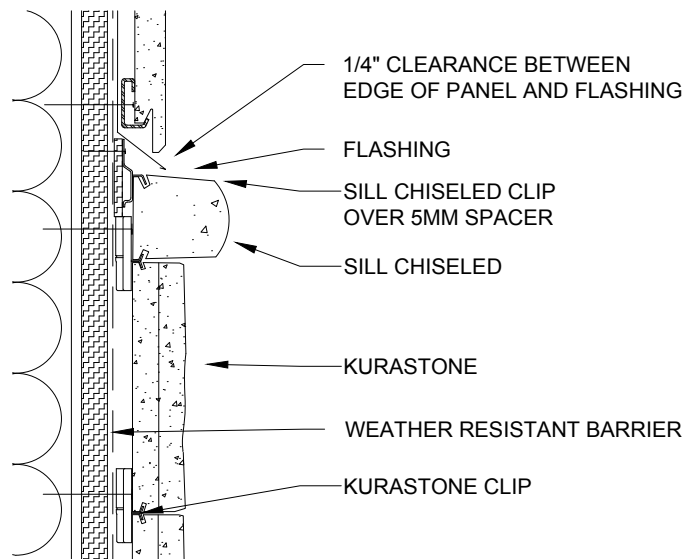


Sill Chiseled Clips



5mm Spacer

Fig. 37



WINDOW SILLS

Fig. 38

Option One (preferred):

Attach Ultimate Starter Track upside down under the window. Place Chiseled piece so that its top groove fits over the Starter and secure it with two Sill Chiseled Clips over 5mm Spacer underneath.

Sill Clips are attached upside down and spaced 2" (50mm) from the ends. Fasten with two screws each.

For the top row of KuraStone panels, butting beneath Sill Chiseled, follow *Installing The Last Course* instructions (Figure 38).

Seal all cut, exposed edges with exterior paint or primer. Butt edges in moderate contact.

Option Two:

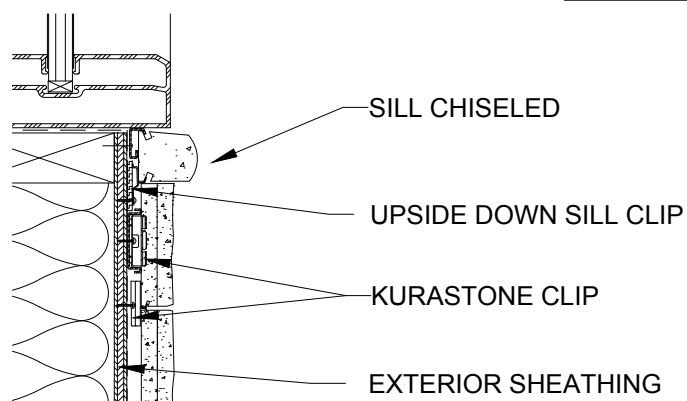
Attach a 1/16" thick, anodized aluminum L-angle channel at 1 - 7/8" (50mm) below the bottom of the window. Secure the L-angle channel with #8 x 1-1/4" lath/flathead screws spaced every 16" (406mm).

Next, liberally apply polyurethane construction adhesive to both surfaces of the channel and place Sill Chiseled piece firmly onto the channel, ensuring solid contact with the back/wall surface of the channel and a seating depth of 7/8" (23mm).

For the top row of KuraStone panels, butting beneath Sill Chiseled, follow *Installing The Last Course* instructions.

Tip: Use a small shim between the window sill and the KuraStone Sill Chiseled to ensure sufficient pressure to keep the piece in place as the adhesive dries.

Note: Per the window manufacturer's requirements, if directed, add a sealant between the bottom of the window and the top of the Sill Chiseled piece.



THE POWER OF POSSIBILITIES AND PARTNERSHIPS

Your creative vision is unique. That's why Nichiha wants to offer you the power of cooperation to help your project move from conception to completion. Our ever-expanding offering of textures and finishes lift buildings to new and unexpected places and we want to share them with you. We place a high value on our relationships and are proud to work with our dedicated partners across the country. Join us and discover the power of possibilities and partnerships with Nichiha.

NICHIHA WARRANTIES

- ILLUMINATION SERIES PANELS
15-year limited warranty* on panels,
15-year limited warranty* on finish.
- ARCHITECTURAL WALL PANELS
(Brick, Block, Stone, Wood, Kurastone)
15-year limited warranty* on panels,
15-year limited warranty* on finish.
- METAL TRIM
Tamlyn warrants defective-free products for a period of 10 years for the original purchaser. Please visit tamlyn.com for detailed information on terms, conditions and limitations.

*See Nichiha warranties for detailed information on terms, conditions and limitations. Visit nichiha.com for easy downloadable warranties or call toll-free 1.866.424.4421 for a copy.

Nichiha SDS are available on nichiha.com.

CERTIFICATION & TESTING



Code Compliance
CCRR-0290



FL # 12812
HVHZ Yes



Canada CCMC
14132-R



the power of possibilities™

CRYSTALLINE SILICA DUST WARNING: Nichiha products may contain some amounts of crystalline silica [a.k.a. sand, silicone dioxide], which is a naturally occurring mineral. The amount will vary from product to product. Inhalation of crystalline silica into the lungs and repeated exposure to silica can cause health disorders, such as silicosis, lung cancer, or death depending upon various factors. To be conservative, Nichiha recommends that whenever cutting, sawing, sanding, sniping, or abrading the product, users observe appropriate safety protocols. For further information or questions, please consult Nichiha SDS, your employer, or visit osha.gov/silica and cdc.gov/niosh/topics/silica. The SDS for Nichiha products are available at nichiha.com/resource-center, at your local Nichiha dealer, or through Nichiha directly at 1.866.424.4421. FAILURE TO ADHERE TO OUR WARNINGS, SDS, AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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