

UNILOCK

NATURAL STONE

INSTALLATION GUIDE



UNILOCK[®]
TRANSFORMING HARDSCAPES

NATURAL STONE

INSTALLATION GUIDE



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The successful installation of natural stone paving units from Unilock is dependent on the structural integrity of the base below the surface of the slabs. This will include many factors such as wood or concrete decking integrity, site drainage, cutting and quality of concrete mortars and grouts.

INSTALLATION

1. All installations and their respective bases indicated in this guide, should always be installed on undisturbed native subsoil. Provisions for drainage and frost protection are ultimately the installer's responsibility and can be managed by slope, drains or depth of base.
2. Only use cementitious adhesives, modified mortars and grouts that are approved for exterior use. Cementitious bedding is typically made up of three parts masonry sand and one part Portland Type I or Type II cement. Always observe manufacturer's directions and be sure to conform to all ACI (American Concrete Institute) and PCA (Portland Cement Association) standards. Always install in accordance with ASTM C615, Standard Specification for Granite Dimension Stone; ANSI/CTI A108.1. Note: Bond/Slurry coats should always be applied to all surfaces to be adhered. Ardex 8+9 is recommended (see page 11)
3. Building code requirements may vary. Always review local building codes prior to design and construction.
4. Use only approved geotextiles and geogrids.
5. **DO NOT** compact the surface of natural stone paving units with a plate compactor.
6. Use only diamond blades specifically designed for cutting natural stone paving units. Always "wet-cut" natural stone and wash slurry from both surfaces before installing.
7. Impervious sub-structures must always be sloped for drainage or be designed with provisions for drainage. Both the base and the slab surfaces should have an endfall slope away from the buildings and structures at 1:40. The opposite crossfall slope should be 1:80.
8. Thicknesses of base, concrete and bedding indicated in these details are typical. Actual design specifications should always be determined by a qualified professional. All base materials must be placed over undisturbed subsoil and compacted to 95% SPD. Never install product on topsoil.
9. Natural Stone slabs installed over wood decking must have impervious jointing compound between joints to prevent water from rotting the wood overtime.

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PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal Protective Equipment (PPE) should be worn on site such as goggles, N100 stone dust rated masks and gloves, especially when the units are being cut. A minimum requirement for personal protective equipment on site should include a hardhat, protective gloves, protective shoes and high visibility clothing.



CLEANING

Natural stone may be susceptible to staining. When stains do occur, it is imperative that they are cleaned properly and safely to ensure that the appearance is restored and that the surface is not altered or damaged. Natural Stone can often be cleaned with just soap and water. Plain water with a stiff brush (DO NOT use a metal wire brush) is the best tool because it will not damage the stone. **NEVER USE A PRESSURE WASHER** on the fine finish of natural stone; this can leave marks on the stone.

Organic stains, such as coffee, wine, food, algae etc., on unsealed surfaces, will usually dissipate naturally over time or can be cleaned also. Natural stone can be sealed to help prevent the penetration of stains. Always observe sealer manufacturer's directions for usage.

Always test cleaners and sealers on an unobtrusive area of the installation to ensure that the cleaner is producing the desired outcome before applying to the entire project.

ACIDS

NEVER use Hydrochloric or Sulphuric (Muriatic) Acid based cleaners to remove pointing/grouting residue from natural stone.

Phosphoric acid-based cleaners can be used on acid-resistant sandstones and granites.

NEVER use any acid on limestone.

SEALERS

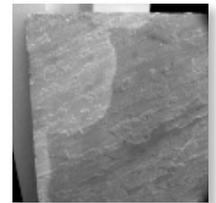
Any sealer applications in wet areas such as pool decks or patios should be done with impregnating sealers that remain "breathable". See manufacturer's specifications.

Products that **form a film on the surface are not recommended** for most applications because they do not allow moisture to get through and may also be slippery when wet.

Always test a small area in an unobtrusive location before sealing entire area.

• Recommended Sealers and Cleaners

Unilock offers a complete line of sealers and cleaners for the Natural Stone products. Please refer to page 10.



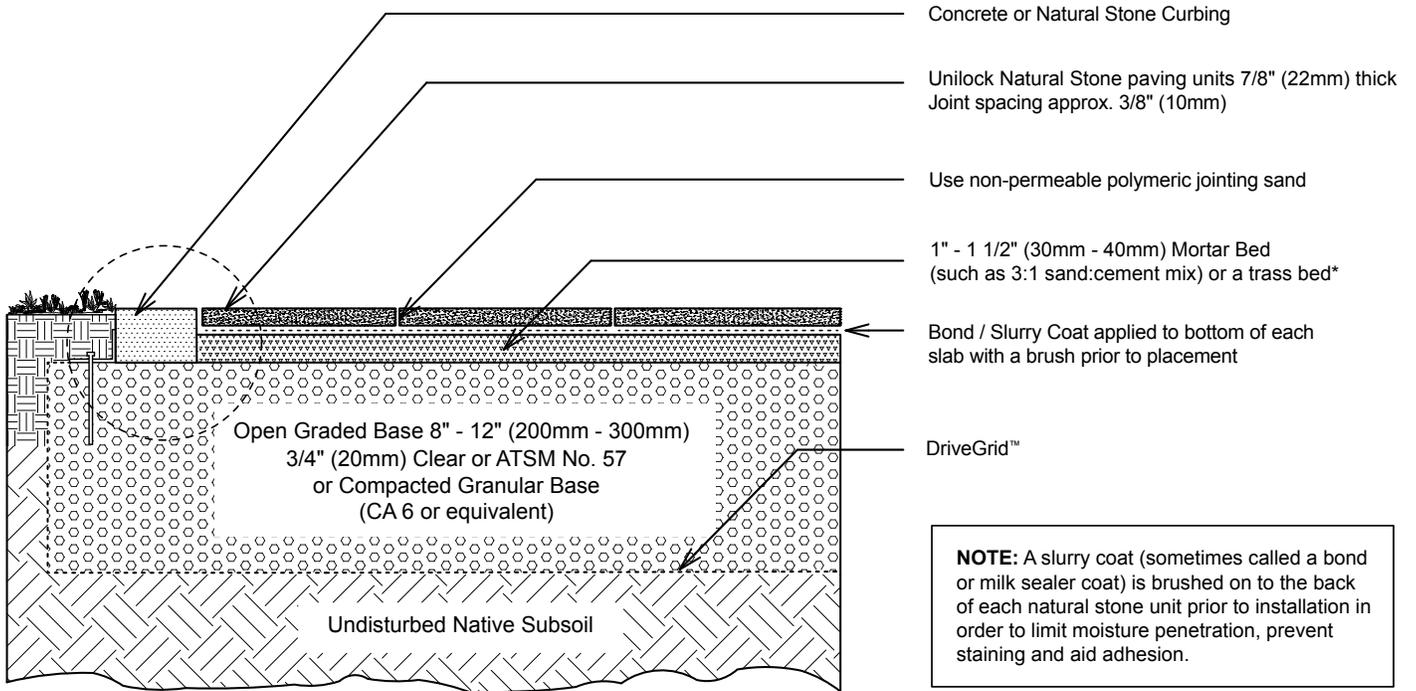
Light area indicates damage from acid.

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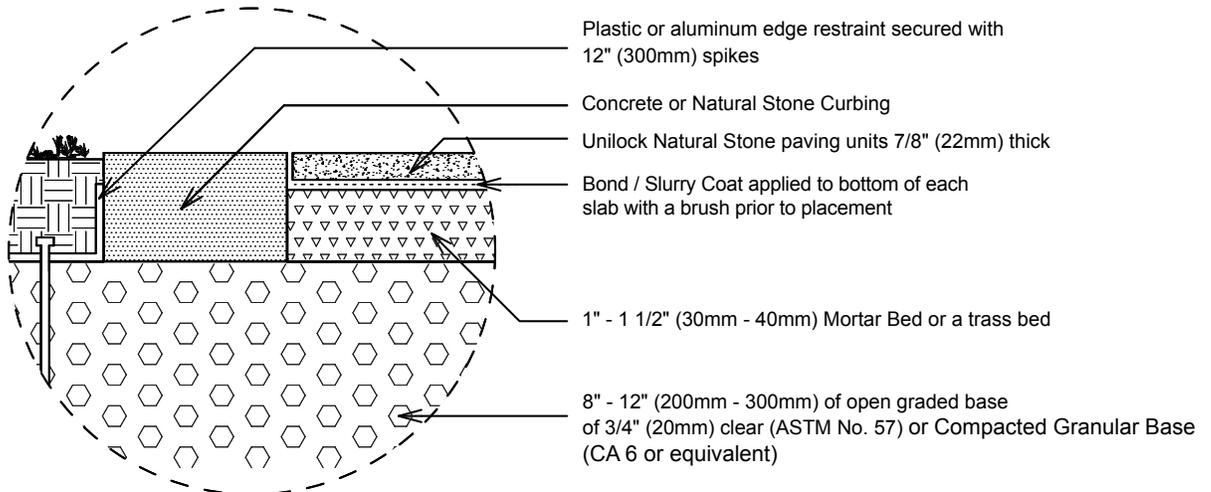
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OPEN GRADED OR COMPACTED GRANULAR BASE



Cement stabilized chip is a mixture of 80% open graded chip and 20% portland cement with enough water to create a pasty yet flowable mix.



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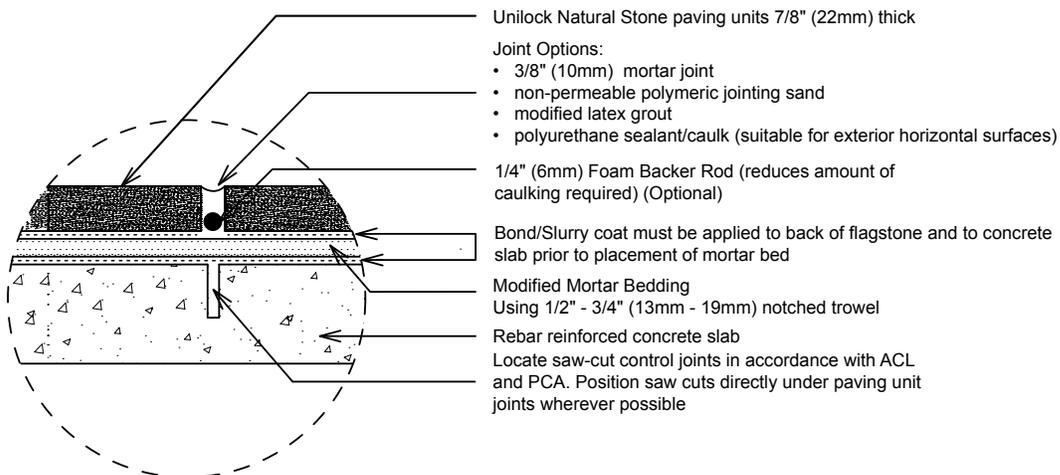
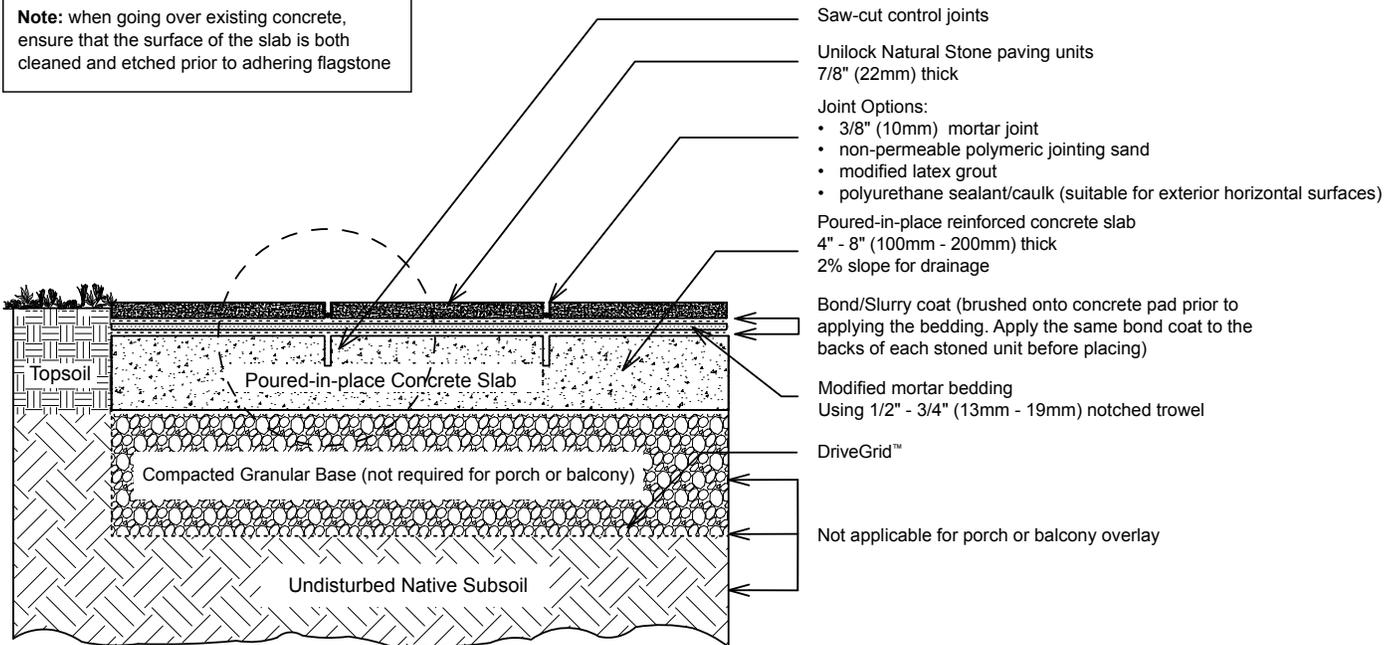
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CONCRETE OVERLAY

- FOR **GOOD** QUALITY CONCRETE PATIO, PORCH OR BALCONY SURFACES THAT ARE PROPERLY SLOPED

Note: when going over existing concrete, ensure that the surface of the slab is both cleaned and etched prior to adhering flagstone



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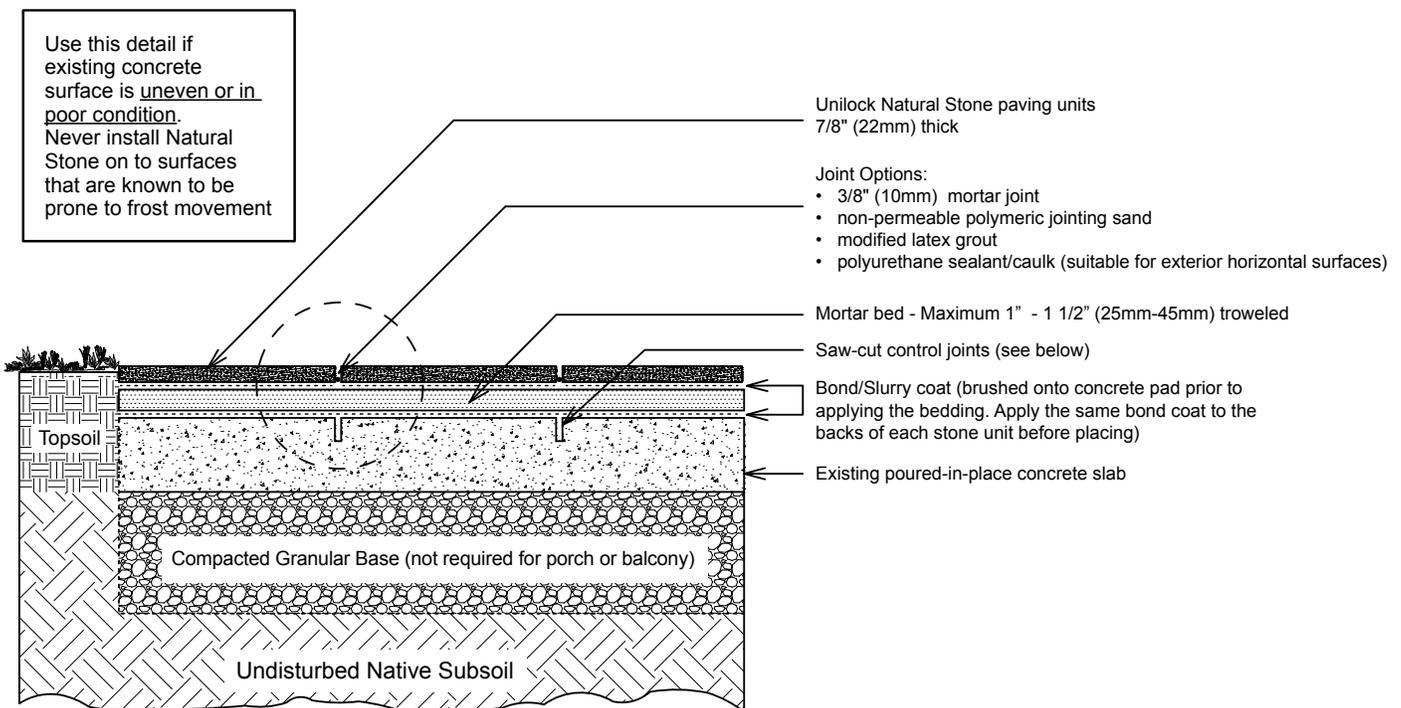
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CONCRETE OVERLAY

- FOR **POOR** QUALITY OR UNEVEN CONCRETE PATIOS, PORCHES OR BALCONY SURFACES

Use this detail if existing concrete surface is uneven or in poor condition. Never install Natural Stone on to surfaces that are known to be prone to frost movement



Unilock Natural Stone paving units
7/8" (22mm) thick

Joint Options:

- 3/8" (10mm) mortar joint
- non-permeable polymeric jointing sand
- modified latex grout
- polyurethane sealant/caulk (suitable for exterior horizontal surfaces)

Mortar bed - Maximum 1" - 1 1/2" (25mm-45mm) troweled

Saw-cut control joints (see below)

Bond/Slurry coat (brushed onto concrete pad prior to applying the bedding. Apply the same bond coat to the backs of each stone unit before placing)

Existing poured-in-place concrete slab

Compacted Granular Base (not required for porch or balcony)

Undisturbed Native Subsoil

Joint Options:

- 3/8" (10mm) mortar joint
- non-permeable polymeric jointing sand
- modified latex grout
- polyurethane sealant/caulk (suitable for exterior horizontal surfaces)

1/4" (6mm) Foam Backer Rod (reduces amount of caulking required)(not required for mortar joint)

Mortar bed - Maximum 1" - 1 1/2" (25mm-45mm) troweled

Unilock Natural Stone paving units 7/8" (22mm) thick

Bond/Slurry coat applied to back of natural stone slabs prior to placing

Bond/Slurry coat applied to existing concrete surface

Locate saw-cut control joints in accordance with ACI and PCA

Position saw cuts directly under joints between paving units whenever possible.

Existing poured-in-place concrete slab

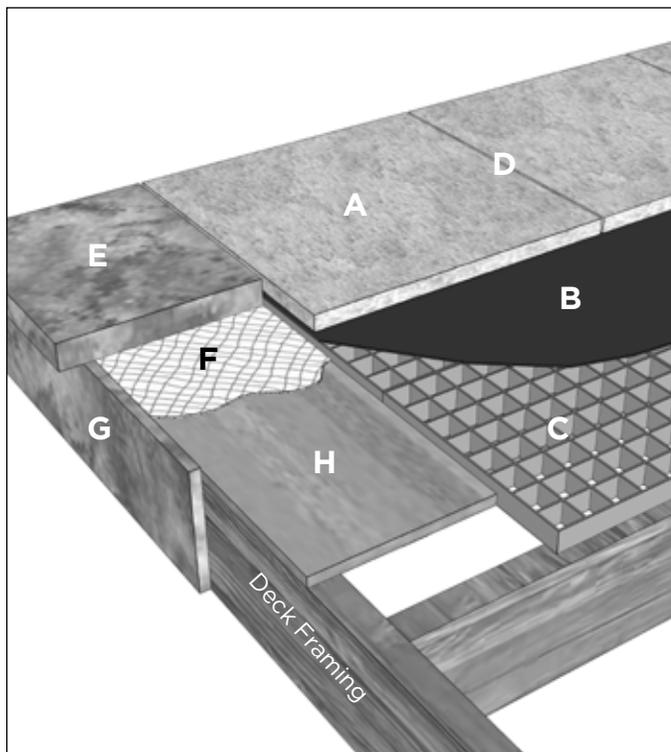
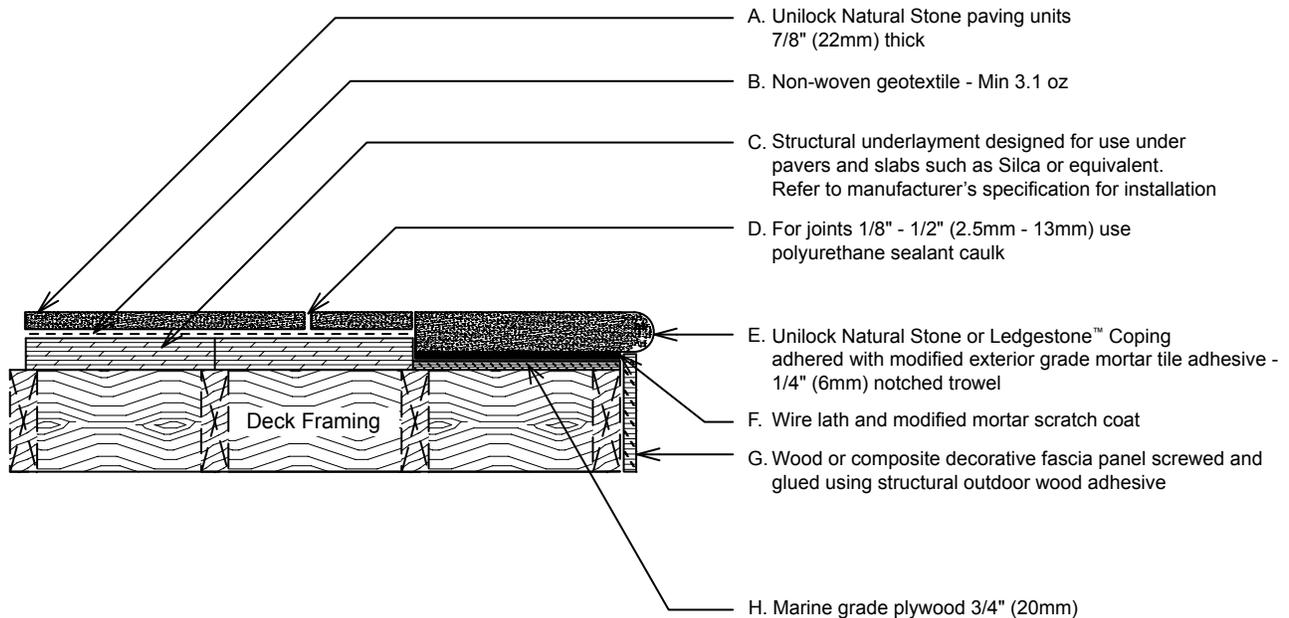
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WOOD DECK VENEER

- STRUCTURAL UNDERLAYMENT FOR ELEVATED DECKS



Note: The success of any Natural Stone installation over wood decking is entirely dependent on the decking structure. Always refer to underlayment manufacturer's specification for new or existing deck installations, and always follow local building codes.

To accommodate varying heights, structural underlayment can also be cut and recessed between joists. If joints between slabs are left open or permeable, water may penetrate and damage wood structure.

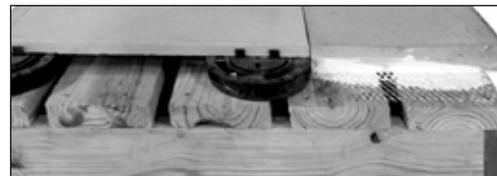
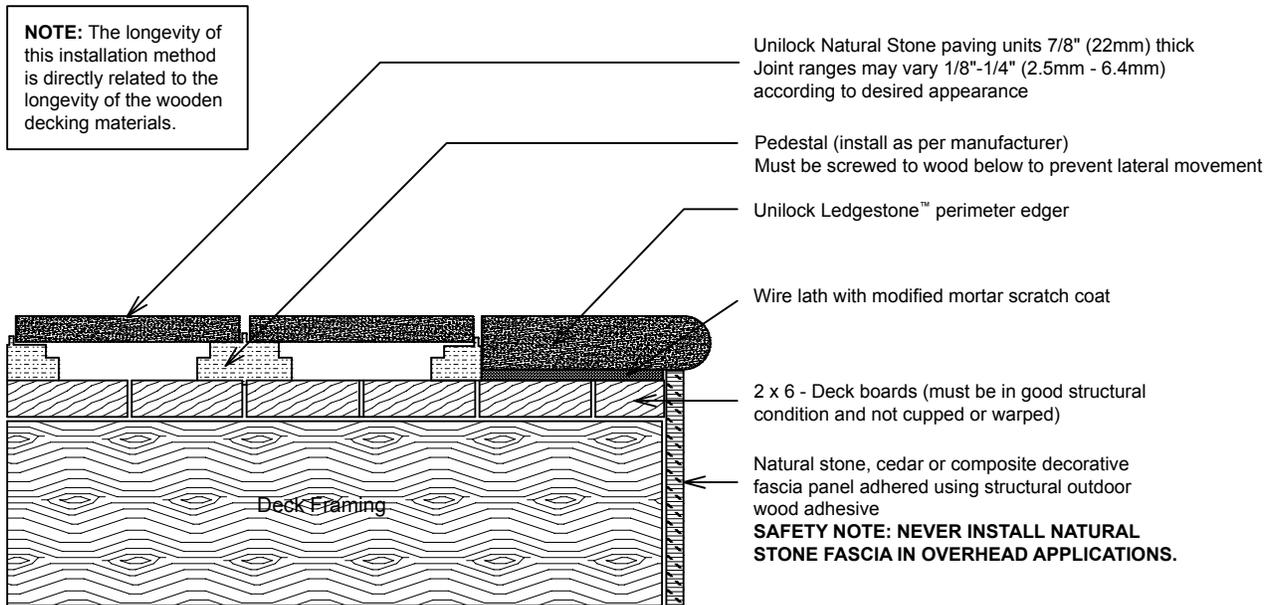
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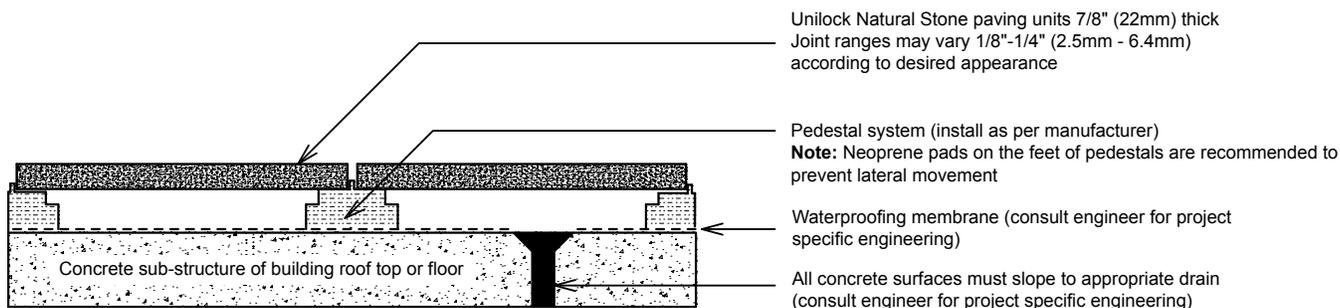


WOOD DECK VENEER

- LOW PROFILE PEDESTAL



PEDESTAL ON CONCRETE APPLICATION



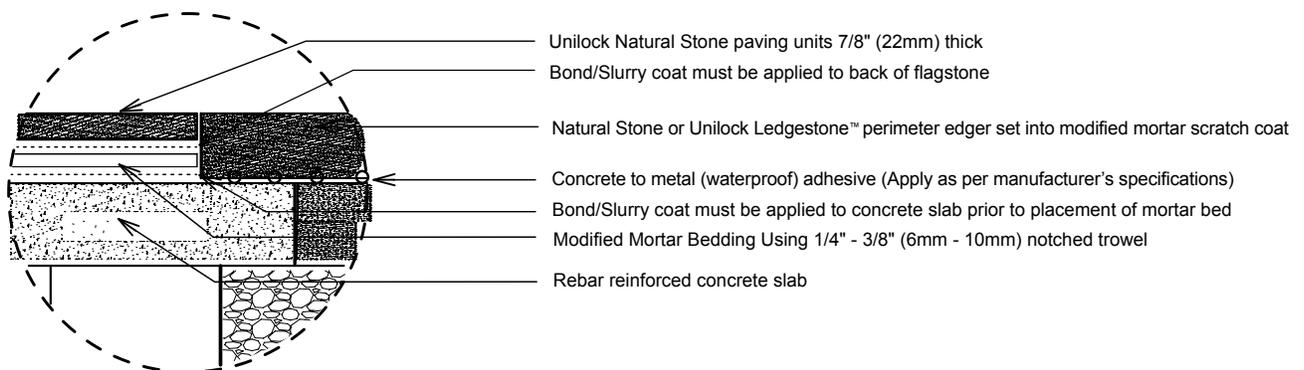
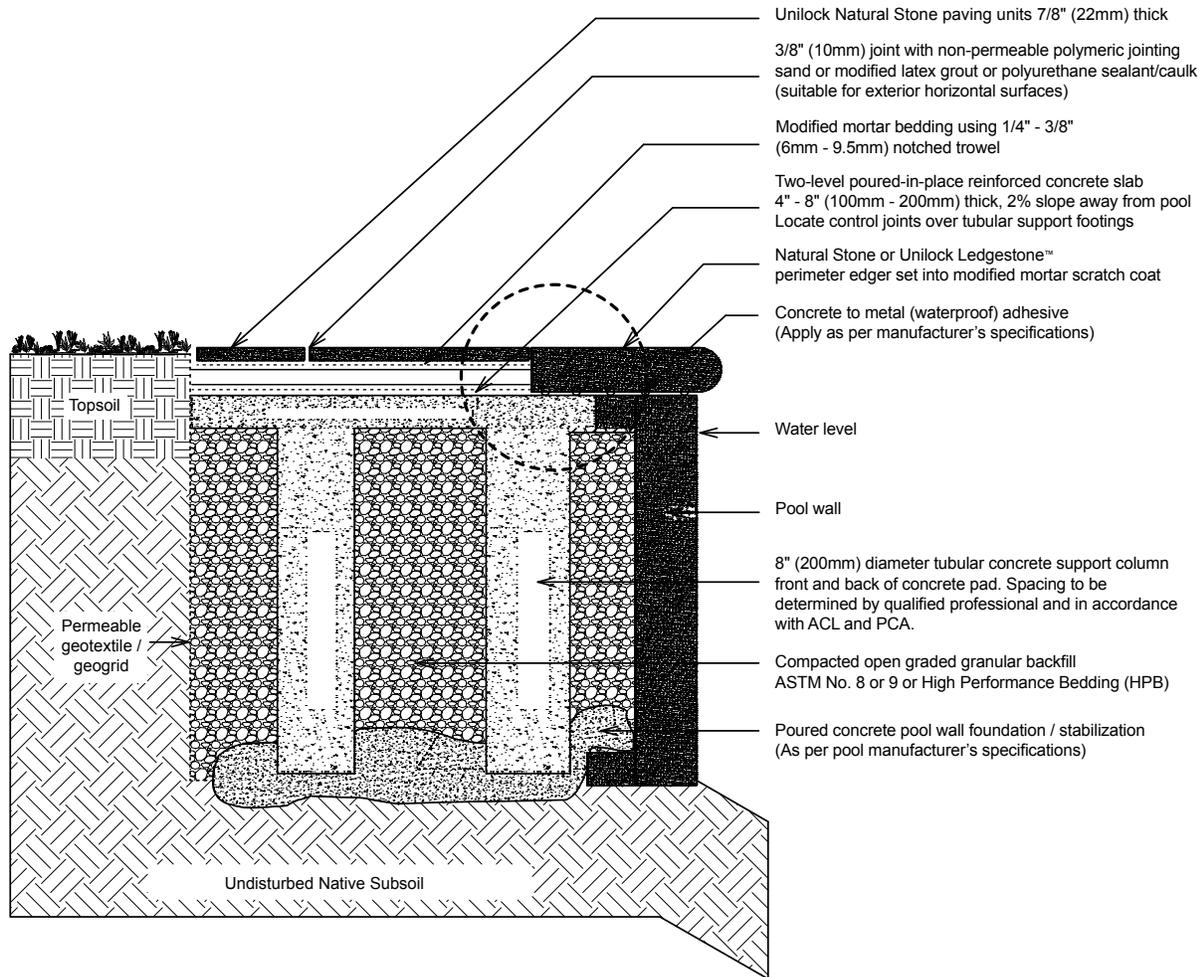
NOTE: Specific installation details may vary based on pedestal height, load-bearing requirements, safety standards and wind-lift. All roof top slab/pedestal installations must be engineered by a professional engineer.

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POOL COPING AND POOL DECK



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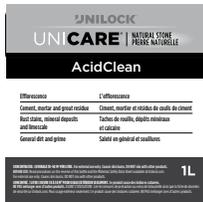
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UNI-CARE CLEANERS & SEALERS FOR NATURAL STONE

RECOMMENDED PRODUCTS FOR INSTALLING, CLEANING, ENHANCING & PROTECTING

AcidClean



Removes mineral type residues including cement and mortar residues, efflorescence, rust stains, general dirt and grime, hard water scale (limestone), grout haze and grout films.

- Efflorescence
- Cement, mortar and grout residue
- Rust stains, mineral deposits and limescale
- General dirt and grime
- Concentrated.
- Coverage 10-50 M² per litre
- Available in 1L or 5L sizes

PowerClean



A high alkaline cleaner and degreaser. Can be used on natural stone, grout, ceramic, porcelain, terra cotta, quarry tiles, concrete, pavers and masonry.

- Oil, grease and food stains
- Sap and certain stains from plants
- General dirt and grime
- Light cement contamination on acid sensitive surfaces
- Concentrated.
- Coverage 10-32 M² per litre
- Available in 1L or 5L sizes

BioClean



Removes organic type soiling such as black spot algae, green algae, staining from birds, berries, leaves, trees, bark, compost and colored food spillages such as tea, coffee, wine and popsicles, etc.

- Black spot algae, Green algae
- Leaves, wood, trees, berries and flower stains
- Organic bark and compost stains
- Food drink and spills
- Concentrated.
- Coverage 4-8 M² per litre
- Available in 1L or 5L sizes

NatMatte Sealer



For use on Sandstone and Limestone, NOT including Black Limestone. NatMatte Sealer is an impregnating sealer, meaning it will leave no sheen, shine or surface coating of any kind. The product soaks into the stone surface which remains completely natural in appearance. NatMatte Sealer protects stone from staining from food, oil, grease, drinks, leaves, trees and general dirt. Helps to reduce algae growth.

- No sheen or shine
- No color change on most stones
- General dirt
- Algae growth
- Stains from food, oil, birds, plants, leaves and trees
- Available in 1L or 5L sizes

NatColorEnhance Sealer



For use on Sandstone and Limestone, including Black Limestone. NatColorEnhance Sealer is an impregnating sealer, meaning it will leave no sheen, shine or surface coating of any kind. The product soaks into the stone surface which remains completely natural in appearance but enhances the natural color (gives a 'damp' look to the surface). NatColorEnhance Sealer protects stone from staining from food, oil, grease, drinks, leaves, trees and general dirt. Helps to reduce algae growth.

- Enhances Natural Color
- No sheen or shine
- General dirt
- Algae growth
- Stains from food, oil, birds, plants, leaves and trees
- Available in 1L or 5L sizes



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DISCLAIMER

The cross sections and diagrams included in this document are intended for the preliminary design and installation of natural stone paving units from Unilock. Unilock cannot guarantee and will not be held responsible for any installation failure and accepts no liability for the improper use of these details.

It is the installer's responsibility to ensure that all site and structural factors are properly addressed and a structural engineer may be required to provide site-specific engineering and installation specifications.

NOTE: Unilock cannot guarantee the tensile strength of natural stone paving units for pedestal applications or when substructures shift or deteriorate.

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