



MS International, Inc.
Premium Surfaces Since 1975

Hardscaping Installation Manual



M S International, Inc.

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INDEX

Installation of Pavers	1
Installation of Meshed Flagstone	2
Installation of Ledger Columns	3
Installation of Veneer Stone	4



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Sand Set Installation of Pavers

1. Preparing the ground

- Mark your project area with wooden stakes and string lines where you would like the top of your pavers. Remove sod and dig out area at least 7 ³/₈" below string line (if installing a residential driveway or parking area, you need to dig out at least 9 ³/₈").



2. Making the Bed

- Bring in crushed rock for your sub base. Bring the crushed rock up to 3 ¹/₂" below your string line - the rock should be at least 4" deep in all places (if installing a residential driveway or parking area, the rock should be at least 6" deep in all places). Level and compact crushed rock using a manual compactor. This procedure provides a level surface upon which the pavers are laid, and is very important to the quality of the finished pavement.



3. Preparing Sand Bed

- Screed the bedding sand in place by using two pieces of 1" PVC pipe for spacing. Place them parallel to one another on the base rock. Remove pipe conduit and fill in voids (do not compact or walk on sand). Screed only as much sand as you can cover with pavers in one day. Sand left overnight or longer can become unlevelled or wet.



4. Lay Pavers

- Lay pavers in your desired pattern. Start laying pavers outward in a staggered pattern. If cut pavers are necessary, you can use a masonry saw, or a hammer and chisel. Measure over to your string line every few feet to make sure that you are staying on track.



5. Compacting

- Sweep sand diagonally across pavement into the joints. Use a hand tamp or rubber mallet to set the pavers. Work from the perimeter inward, going over the surface at least twice, until the surface is level to your satisfaction.



6. Sand Joints

- Spread more sand over the surface of the pavement and sweep it diagonally into the joints to finish filling them. Save any extra sand - you may want to sweep sand into your pavement again later to refill joints that wind or rain may empty.



Installation of Mesh Mounted Flagstone

1. Surface Requirement

- Meshed Flagstone is best installed over a sub-base. Mesh Flagstone is not design for Sand set installation. Entire installation surface must be clean and flat, and free of sealants, grease and other oily compounds.
- Before you set the stone, find the center point of the room. Measure the length and width of the room, marking the halfway points.
- Dry lay the mesh in order to determine where the cuts will need to be made at the edges. Set the first mesh in the center of the room.



2. Setting the Flagstone

- Use a masonry $\frac{1}{2}$ " square notch trowel to spread an even layer of mortar – approximately $\frac{1}{2}$ inch thick. Spread the mortar out in an area that is slightly larger than the size of one piece of Mesh Flagstone.
- Set the Meshed Flagstone and firmly press it into mortar bed to ensure that the mesh backing penetrated into mortar. Use a level or other straight edge to ensure a flat and consistent surface from one piece to another piece. You may have to use a rubber mallet to tap down high points.
- It's a good idea to wipe the stones clean as you set them. Keep a bucket of clean water and a sponge to wipe off the thin set.



3. Making a Template

- You will need to make cuts.
- It's helpful to create a template (use cardboard or large thick paper) to show the exact shape of the partial mesh section to fill the gap created by walls or other straight borders. Simply place a straight edge of your cardboard along the wall and draw the outline of the area to be filled with partial mesh section.
- Transfer the template onto the section of mesh that must be cut. Spread the layer of mortar and set the newly cut mesh section gently in place.



4. Grout Installation

- Prepare your selected sanded grout according to the grout preparation guide on package. Fill the grout with wet sponge; making sure no grout is left behind on the surface of the stone.



5. Sealer (Optional)

- To protect your stone from stains and spills, we recommended sealing the stone and grout.



Ledger Stone Column Installation Guide

Refer to your local building codes to ensure that your project complies with all construction requirements.

1. The column should have an adequate foundation enough to support a solid concrete finished column up to 5' in height. Foundation must be level. If not, Pour the concrete footing and level flat with a masonry trowel.
2. Set first base column on to wet concrete footing. This will allow proper bonding with footing. Let it set and dry before moving to next step.
3. Continue to stack to the desired height while making sure all eyelets are in line.
4. Run a steel rebar through all eyelets.
5. Fill with posthole concrete and let it dry.
6. Place 21x21" column cap on 1/2" bed of mortar.

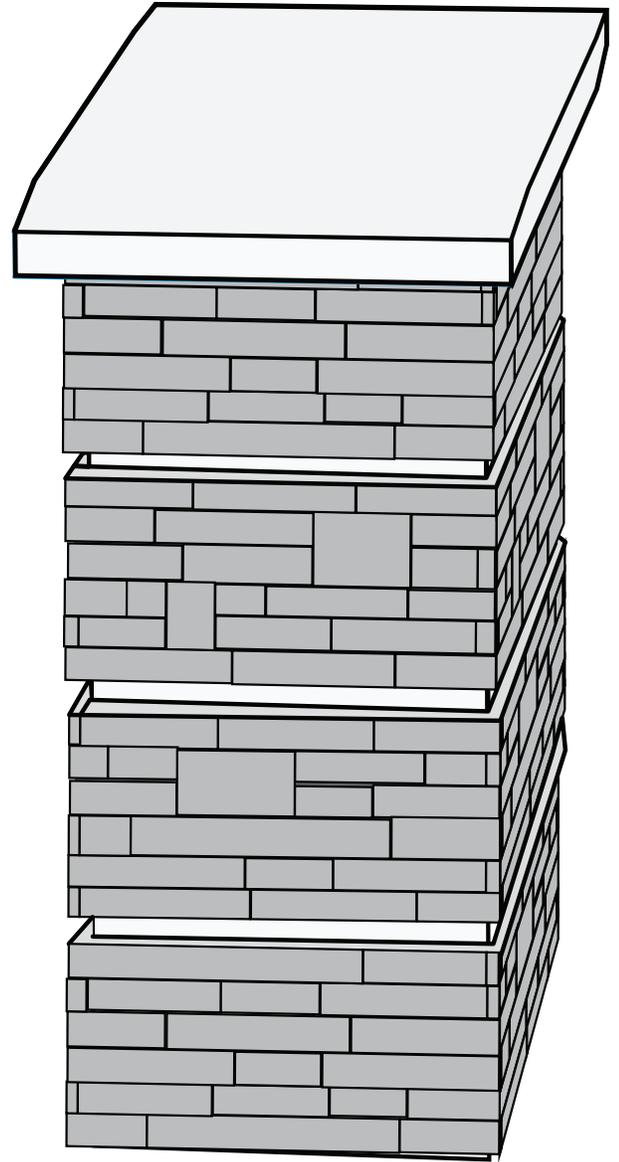
21x21x2"
CAP

18x18x12"
COLUMN

18x18x12"
COLUMN

18x18x12"
COLUMN

18x18x12"
COLUMN



Charcoal Rust



California Gold



Golden White



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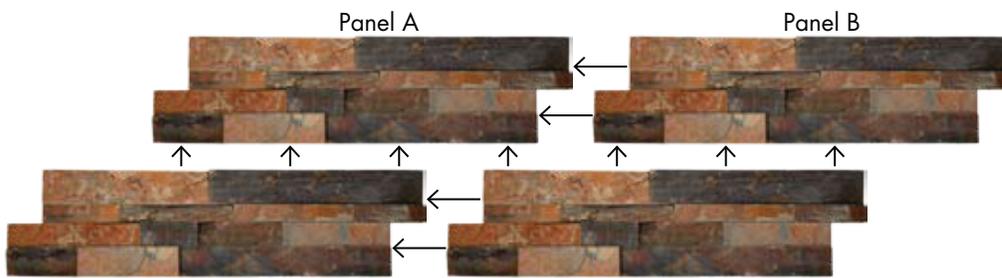
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Natural Stone Ledger Panels

M S International's Natural Stone Ledger panels are trimmed pieces of natural ledger stone affixed together to form modular panels, which allows for the streamlined installation of dry stacked ledge stone veneer. M S International's natural stone veneer panels feature a unique joint design that becomes virtually undetectable after installation. We offer these panels in two styles: Natural stone ledger stepped panels and "L" ledger stepped panel corners for outside corner.



Golden White Ledger Panel



Both ends are " Stepped " Cut

Stepped Panels

Stepped Panels are designed to interlock together like puzzle pieces. Panel A will lock into Panel B and so on for seamless fit

Installation Guidelines

M S International's Natural Stone Ledger Panels can be used to create beautiful stone veneer on interior or exterior walls. Substrate

should be structurally sound, clean, dry and free of debris. Substrate can be cement block wall or cement board attached to wall.

1. Working from the bottom of the wall upward, coat the wall with 0.5inch plus layer of mortar, covering slightly more than the width of each panel
2. Apply layer of mortar to the back of the ledger panel and press the panel firmly in place. To ensure maximum bond of each panel to the wall surface, use a rubber mallet to tap each ledger panel in to its final position
3. Repeat step # 2, adding panels in a linear direction (end-to-end, rather than stacking) to create multiple layers of panels until the desired height is reached.
4. Standard 6x24" Natural Ledger Panels feature Stepped Cut design which creates a seamless look, as random stone pieces were set by a craftsman.
5. To protect your stone from stains and spills, we recommend sealing the stone surfaces.



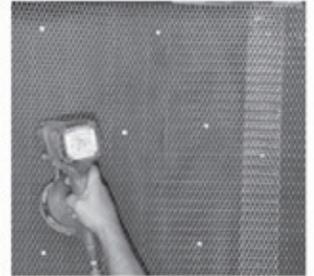
California Gold Ledger Panel



INSTALLATION OF VENEER STONE

1. Preparing the surface *(skip to step 3 if applying stone directly to block or cement surface)*

When preparing the surface, apply a weather resistant barrier such as 2 ply 60 minute black paper as a water resistive barrier to a non-masonry surface. Overlap the paper 2" on horizontal seams and 6" on vertical seams. Apply wire lath horizontally over the paper. Overlap the lath 2" on vertical seams and at least 1" on horizontal seams. Use 1" nails or staples to secure the lath. Nail or staple the lath vertically every 6" to further secure the lath. It is important to fasten the lath on both sides of the frame when coming to a corner.



2. Scratch coat

Now you are ready for the scratch coat. Mix the mortar and cover the lath entirely in mortar using a masonry trowel. And before the mortar dries, use a bristled brush to scratch the mortar. Allow enough time for the mortar to dry before applying the stone.



3. Start with the corners

It's time to apply the stone. The scratch coat must be wet. Mix the mortar and apply it to the wall where you will set the corners. Pick the first corner and apply mortar to the back of the stone or "butter" the stone with a 3/8 thickness of mortar. Start at the bottom of the wall and work up. Alternate the corners from long side to short side. This will create a random pattern and will appear more natural. Apply several feet of corners to begin.



4. Applying the flats

For the flat pieces, apply the mortar to the scratch coat 5 – 10 square feet at a time so the mortar does not set up before the stone is applied. Start from the bottom up and go across and one row at time. Also remember to "butter" each stone before applying to the wall. Alternate large pieces and short pieces. It will be necessary to cut pieces of stone to fit in small gaps so use a grinder with a 4" diamond blade to cut the stone and to fit these stones in the gaps. The cutting will create dust, so be sure to do it outside. A level must be used if the stone is linear. Check each line to make sure it is level.



5. Grouting the joints

In order to grout the joints, use a grout bag. Cut the bag at the tip and avoid smearing mortar on the stone. If mortar gets on the stone, it may be cleaned after it has dried and has become crumbly. Use a dry bristled brush to clean the stone.

