

Hardscaping Doesn't Have to be Hard: How to Effectively Teach Your Team

Adam DeLamielleure

Unilock, MI

248-388-5831

Adam.delamielleure@unilock.com

JOBSITE PROGRESSION- PAVING STONES

<p>PLANNING</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Call utility locaters <input type="checkbox"/> Order bulk materials <input type="checkbox"/> Order pavers <input type="checkbox"/> Organize and order other materials
<p>PREPARATION</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Inspect site for unforeseen objects <input type="checkbox"/> Establish job progression <input type="checkbox"/> Organize project and site logistics <input type="checkbox"/> Layout project and set grades (ensure for base extension)
<p>EXCAVATION</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Determine overall depth of excavation <input type="checkbox"/> Excavate area and remove spoils <input type="checkbox"/> Install sleeves <input type="checkbox"/> Compact sub-grade <input type="checkbox"/> Special considerations
<p>BASE INSTALLATION</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Install filter fabric or DriveGrid on sub-grade <input type="checkbox"/> Install and compact base material <input type="checkbox"/> Check for proper base extension <input type="checkbox"/> Final base check with strings or pipes
<p>LEVELING COURSE</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Determine best job progression for paver installation <input type="checkbox"/> Determine what point (if any) pavers will be square to <input type="checkbox"/> Determine best orientation for screeding pipes <input type="checkbox"/> Install screeding pipes (should be set 1/2" high above final height)
<p>PAVER INSTALLATION</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Inspect bundles to ensure proper material <input type="checkbox"/> Determine where cuts will be located, for best starting point <input type="checkbox"/> Square pavers to applicable reference point <input type="checkbox"/> Install pavers- mixing bundle when applicable <input type="checkbox"/> Remove screeding pipes and fill as necessary <input type="checkbox"/> Check to maintain proper lines and orientation
<p>CUTTING</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Determine what tools will be used to cut paver <input type="checkbox"/> If necessary, set up cutting station to minimize mess <input type="checkbox"/> Utilize straight edges or flexible pipes to ensure good lines <input type="checkbox"/> Use larger cut pieces to make smaller cuts when possible <input type="checkbox"/> Be sure to adhere to OSHA regulations
<p>EDGE RESTRAINT</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Remove a small amount of sand to ensure edge restraint is below top of paver <input type="checkbox"/> Install edge restraint <input type="checkbox"/> Cover edge restraint with soil prior to compaction
<p>COMPACTION</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Inspect pavers and project prior to compaction <input type="checkbox"/> Cover compactor with pad to protect pavers <input type="checkbox"/> Compact pavers prior to sanding
<p>JOINT INFILL</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Determine what method will be used to fill joints, and follow manufacturer's recommendations <input type="checkbox"/> Sweep sand into joints
<p>FINAL COMPACTION</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Remove excess sand, compact pavers to ensure full joint fill. Repeat if necessary <input type="checkbox"/> Inspect paver to ensure there are no broken pavers

Adam.delamilleure@unilock.com

JOBSITE PROGRESSION- RETAINING WALLS

PLANNING



- Call utility locaters
- Order bulk materials
- Order wall material
- Organize and order other materials

PREPARATION



- Inspect site for unforeseen objects
- Establish job progression
- Organize project and site logistics
- Layout project, determine lowest point, start there

EXCAVATION



- Determine overall depth of excavation
- Excavate area and remove spoils
- Install sleeves (in necessary)
- Compact sub-grade
- Special considerations

DRAINAGE



- Install perforated drainpipe at bottom of wall
- Ensure drain pipe can drain

BASE INSTALLATION



- Install filter fabric or DriveGrid on sub-grade
- Install and compaction base material
- Level final base

BASE COURSE



- Inspect bundles to ensure proper material
- If possible, lay out entire base course to ensure good lines
- Level each block individually

ADDITIONAL COURSES



- Pull from multiple bundles to ensure good color blending
- Stack each course and make sure joints are staggered
- Glue each course (if necessary) and check to make sure wall is aligned properly

BACKFILL



- Install infill material behind wall
- Install filter fabric between retained soil and infill
- Roll out geo-grid to designed length and cut (per design)
- Repeat until at final grade

COPING INSTALLATION



- Dry stack* coping making cuts where necessary
- Glue coping to wall material

FINISHING

- Insure base is embedded properly
- Make sure drain pipe is "day lighted" and working properly
- Create swale at top of retaining wall to move surface water away from wall

Adam.delamieulleure@unilock.com

Hardscape Quick Phrases

Planning and Preparation

- Proper planning prevents poor projects
- It's better to be too high instead of two low

Excavation

- Good operator doesn't waste a trip
- Movement with purpose

Base Installation

- What the base looks like is what the pavers will look like
- The base is the most important part of the process.

Leveling course

- We want the paver to go down and the sand to come up (full joint fill)

Paver installation

- Pavers over pavers
- Get square and stay square
- Look for work!!!

Cutting

- Take your tool to your work not your work to your tool
- Concrete dust is still concrete. You don't want that on the pavers, on your skin, or in your lungs

Edge Restraint

- Straight- at the connection and every 12-16"...curved where you need it
- Pavers are low maintenance not no maintenance. Edge restraint is maintenance.

Compaction

- Inspect before. Inspect during. Inspect after.

Joint Infill

- READ THE BAG
- Blow the sticky water into the joints

Finishing

- It doesn't matter if it looks good from your house...does it look good at their house.

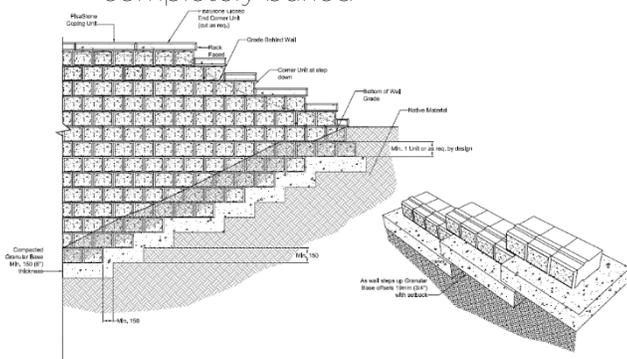
Wall additions

- The #1 reason walls fall is WATER!
- Water above. Water behind. Water in front.
- Level front to back- left to right- block to block
- Take your time. A little problem here will turn into a big problem later.
- If you don't put the grid the right way...you just installed very expensive snow fence

Wall Quick Tips

Where to start?

- Always start at the lowest point
- When stepping up base, always make certain an entire block is completely buried



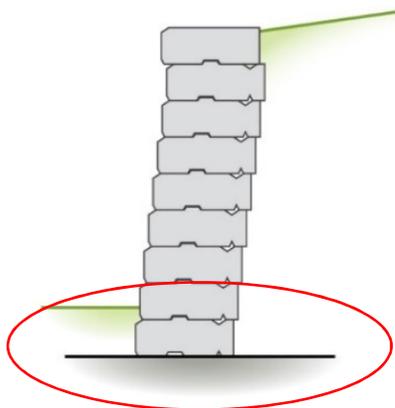
How deep and how wide for the base?

- Depth = a minimum of the height of the block
- Width (face to back) = block depth x 2
- Example: Pisa 2
 - 6" height = 6" depth of base
 - 12" depth = 24" width of base



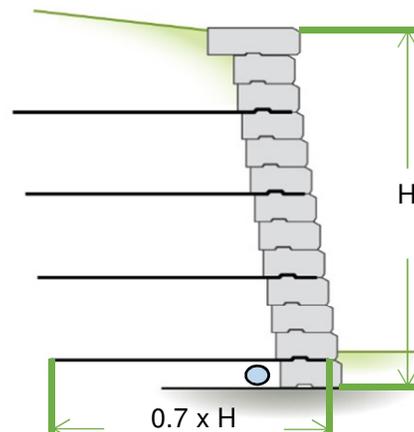
How much to bury? (Embedment)

- 1 unit or 10% the height of the wall. Whichever is greater?
- 14% minimum if the slope in front of the wall is greater than 3:1
- 2 feet minimum in a water application



How much grid?

- Grid length will be a minimum of 70% the height of the wall
- Not all grids are multi directional



Why?

Training questions for paver installation

Preparation

- 1) Why do we need installation processes and systems?
- 2) Why do you place stakes 1 foot outside of proposed perimeter?
- 3) Why is using a laser level desirable?
- 4) When laying a project, why is it better to be too high rather than too low?
- 5) Why is 2" every 10' a good pitch to try to achieve?

Excavation

- 1) Why should sleeves be placed below the base material?
- 2) Why do you compact the subgrade?
- 3) Why should the subgrade be flat and smooth?
- 4) Why do you use geo-synthetic fabric below the base material?

Base Preparation

- 1) Why are certain aggregates recommended?
- 2) Why do you compact the base materials in lifts?
- 3) Why is it important to understand the differences in compactors?
- 4) Why is base extension important?
- 5) Why do you use gravel to make final base adjustments?
- 6) Why do you add water to gravel prior to compaction?

Bedding Layer

- 1) Why is 2NS sand recommended?
- 2) Why do you use screeding pipes?
- 3) Why do you set the paver height ½" high?
- 4) Why do you only screed as much sand as you can lay pavers in a day?
- 5) Why is compaction of the sand layer not necessary?

Laying Pavers

- 1) Why is it important to inspect material before it is installed?
- 2) Why is it important to pull material from multiple bundles?
- 3) Why do you "lay pavers over pavers"?
- 4) Why do you use plywood when laying pavers?
- 5) Why is it important to start square and stay square?
- 6) Why is a running bond a good choice for a curvilinear sidewalk?

Why?

Training questions for paver installation

Edge Restraint

- 1) Why do you remove a little sand before you install edge restraint?
- 2) Why is plastic edge restraint recommended?

Final compaction and jointing sand

- 1) Why do you inspect your work and get final sign off before compaction?
- 2) Why do you compact pavers prior to final compaction?
- 3) Why do you use jointing sand?
- 4) Why is jointing sand a maintenance issue?
- 5) Why do you use a pad when compacting pavers?

Cutting

- 1) Why is picking the right tool for cutting important?
- 2) Why is over-laying for cutting a good option?
- 3) Why are miters a better way to approach tight curve instead of “wedgies”?

Special considerations

- 1) Why are there different base requirements for different applications?
- 2) Why is the area adjacent to a house so challenging?
- 3) Why are weep holes recommend in concrete overlays?
- 4) Why is filter fabric used in concrete overlays?
- 5) Why must concrete overlays be truly thought out?

Poly-sand and sealing

- 1) Why do you use poly-sand?
- 2) Why do you work in 200 sq ft areas with poly-sand?
- 3) Why do you start at the lowest point when wetting poly-sand?
- 4) Why is it important not to be distracted when wetting poly-sand?
- 5) Why are joint stabilizing sealers often a good option?
- 6) Why do you seal?
- 7) Why is it important for the paver and bedding layer to be dry when sealing?
- 8) Why is it important to follow the instructions when sealing?



ONLINE TRAINING FOR
PAVER AND WALL BASICS

LEARN **WHAT YOU WANT
WHEN YOU WANT
WHERE YOU WANT**

Visit UTEC Online

utec.unilock.com

UTECE 101 Basic Paving Stone Installation Program

- Segment I - Basic Paving Stone Installation (UTECE 101 - 01)
- Segment II - Basic Paving Stone Installation (UTECE 101 - 02)
- Segment III - Basic Paving Stone Installation (UTECE 101 - 03)

UTECE 102 Driveway Base Fundamentals Program

- Segment I - Driveway Base Fundamentals (UTECE 102 - 01)
- Segment II - Driveway Base Fundamentals (UTECE 102 - 02)
- Segment III - Driveway Base Fundamentals (UTECE 102 - 03)

UTECE 103 Garden Walls, Pillars and Steps Program

- Segment I - Fundamentals of Garden Walls, Pillars and Steps (UTECE - 103)

UTECE 104 Driveway Design Program

- Segment I - Driveway Design (UTECE 104)

Professional Courses for Architects and Engineers

These courses are maintained, managed and supported by AECDaily.com. You will need an AECDaily user account to take them. Registration is easy and takes about 30 seconds.

- Architectural Paving Surface Technologies and Finish Advancements
- Engineered Segmental Retaining Walls
- Permeable Interlocking Concrete Pavement
- Permeable Interlocking Concrete Pavement: Part II Designing with PICPs

UNILOCK[®]
DESIGNED TO CONNECT.™