Installation Guide

Basic Installation Guidelines
for Palisade Retaining Wall

Rochester
Concrete Products™

Planning Guide

CRITICAL VS. NON-CRITICAL WALLS

There is a significant difference in the planning and construction of retaining walls depending on their purpose. Typically walls under 4' in height are referred to as "non-critical" wall structures. Depending on the local, state and municipality requirements, walls under 4' in height may not require special review or permitting. Walls taller than 4' or any wall with a surcharge loading behind it (ie. sidewalk, driveway, building structure) should be evaluated by a qualified engineer.

BEFORE YOU BEGIN

ZONING AND PERMITS: Before you plan your project, learn about the necessary zoning requirements and rules for excavating and building in your area. No matter how small your project, be sure you obtain the necessary permits before you start construction.

KNOW WHAT'S BELOW: Whether you are planning to do it yourself or hire a professional, smart digging means calling 811 before each job. Homeowners often make risky assumptions about whether or not they should get their utility lines marked, but every digging job requires a call – even small projects like planting trees and shrubs.

MATERIAL REQUIREMENTS

The installation requires 6 inches of compacted Class 5 or ¾-inch crushed stone as base material. A minimum of 12 inches of drainage rock is needed behind the wall. Adhesive is optional but recommended for securing caps and potentially in areas where lugs have been removed.

USE THE FOLLOWING METHODS TO ESTIMATE THE AMOUNT OF BLOCK, BASE MATERIAL, AND DRAINAGE ROCK YOU WILL NEED FOR YOUR PROJECT.

_____ (÷) 2.22 sq. ft/unit = _____
Total Sq. ft. of Wall — Number of Units

BLOCK MATERIAL NEEDED: Divide total sq. feet by 2.22 for total number of Palisade Wall units needed. Adjust upward for jobsite changes and/or waste.

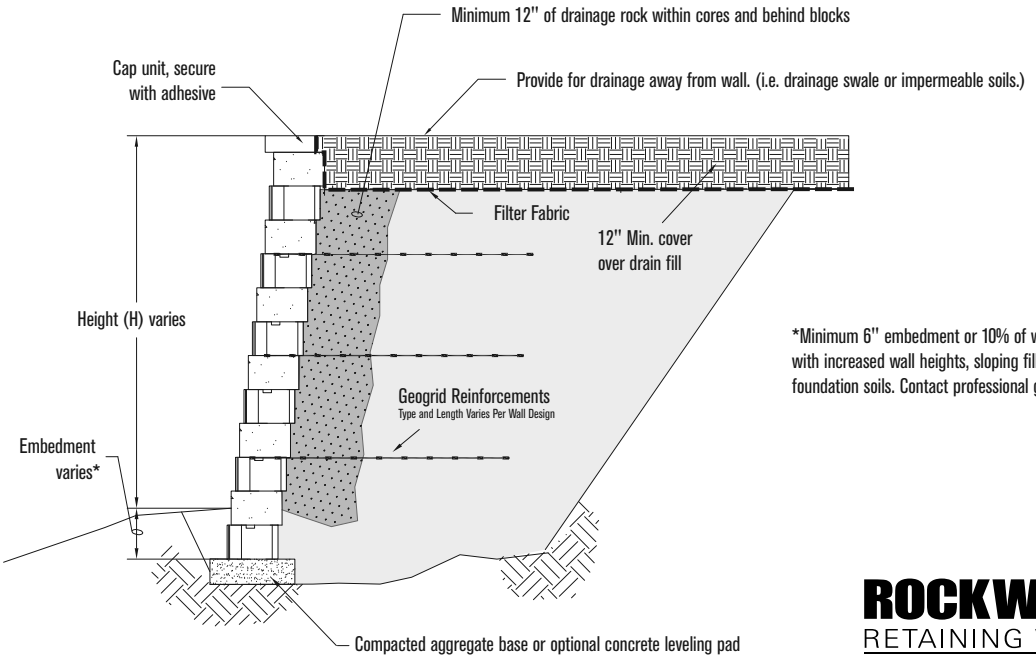
_____ (x) 1.0 (÷) 27 = _____
Sq. ft. of Wall — Cubic Yards

BASE MATERIAL NEEDED: A typical trench is 2' wide and 12" deep to bury 6 inches of block. Your base material must be a minimum of 6" in height.

_____ (x) _____ (x) _____ (÷) 27 = _____
Wall Length (ft.) — Base Thickness (ft.) — Base Width (ft.) — Cubic Yards*

DRAINAGE ROCK NEEDED: You need enough drainage rock to fill 1' behind the tail of the block. *Add 10% for inconsistencies in the trench and compaction.

TYPICAL WALL CROSS-SECTION



*Minimum 6" embedment or 10% of wall height. Embedment increases with increased wall heights, sloping fills in front and behind wall or poor foundation soils. Contact professional geotechnical engineer for guidance.

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RETAINING WALLS
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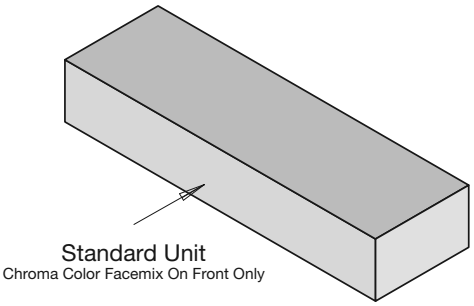
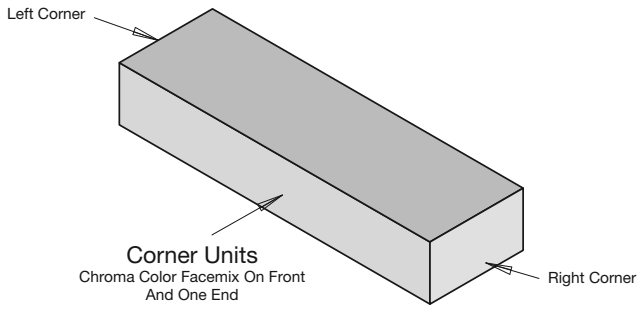
PALISADE WALL BLOCK FEATURES

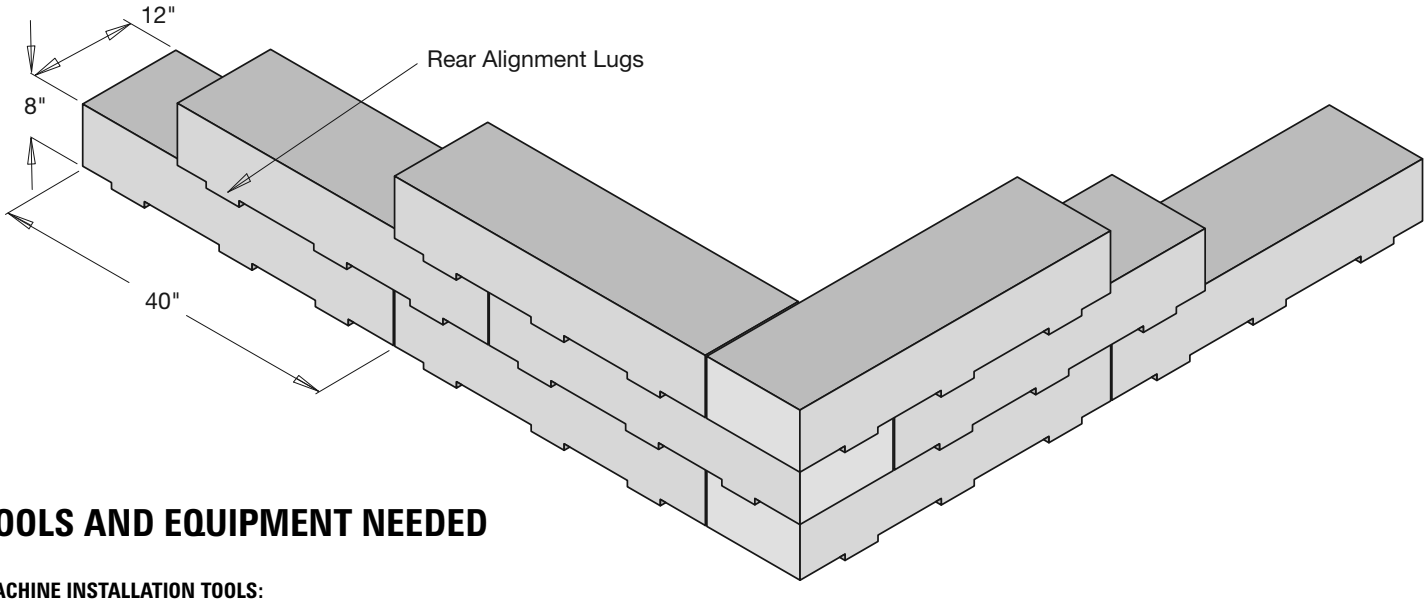
Palisade Standard and Corner units measure 40" W x 12" D x 8" H, with a small chamfered edge on the face. Both feature integral alignment lugs for uniform setbacks of 3/4" per course (5.3 degrees). Palisade Wall is ideally suited for straight walls and 90˚ corners. It is not designed for tight curves.

- 40" W x 12" D x 8" H (2.22 sq. ft.), 330 lbs.
- Smooth surfaces, 90˚ corners, chamfered face
- Builds linear gravity walls with 0.75" setback (5.3˚), adjustable to vertical
- Standard units have Chroma Color facemix technology on face only
- Corner/End units have Chroma Color on face and sides
- Lifting device required
- Cap with Contemporary Wall Cap
- For a faster and easier installation, consider using Torpedo Base Blocks



Please note: **Standard Units** feature facemix only on the front. **Corner Units** feature facemix on the front and one end (left OR right end).





TOOLS AND EQUIPMENT NEEDED

MACHINE INSTALLATION TOOLS:
- Excavator or Skid Steer
- Clamp to lift block (RCP Proprietary Clamp or Step Clamp)*

**Please note: If using step clamp, gripping surfaces of the clamp must be padded to prevent damage to the block face.*

HAND TOOLS:
- Shovels (round and flat)
- Chisel and Hammer (for removing lugs and fine adjustments)
- Rubber Mallet or Dead Blow Hammer
- Tape Measure
- Levels (4 ft. and torpedo)
- Speed Square
- String Line and Stakes
- Masonry Saw or Angle Grinder (with diamond blade)
- Plate Compactor and Hand tamper
- Broom for cleaning block surfaces

SAFETY GEAR:
- Eye protection
- Hearing Protection
- Dust Mask

BEFORE YOU BEGIN

Always verify local zoning requirements and obtain necessary permits. Contact 811 to mark underground utilities before excavation.

811 Know what's **below.** **Call** before you dig.

Basic Installation

1) SITE PREPARATION AND LAYOUT

Begin by marking the wall layout with stakes and string lines. Excavate a trench at least 12 inches deep to accommodate 6 inches of leveling pad material and 6 inches of block embedment. The trench width should be approximately twice the block depth, about 24 inches. Compact the trench bottom thoroughly, then add and compact the base material.

2) BASE COURSE INSTALLATION

For a faster and easier installation, consider using Torpedo Base Blocks. Ensure these are level side-to-side and front-to-back, maintaining a slight 1/8-inch slope away from structures.

If using Palisade units as the base block, bury the first course at least 6 inches and carefully level manually. Using Palisade Block Units for your base course, you can remove the alignment lugs or leave them in place. Leveling may be easier and faster with the lugs removed.

3) INSTALL FIRST COURSE

Begin installation with a corner unit, ensuring you use the correct left or right return piece as specified in your design layout. Set the block gently using lifting clamps, sliding it into place without dropping to avoid damaging the block or disturbing the base. Use a string line and level to check both side-to-side and front-to-back alignment.

From the corner, continue placing the remaining blocks in the first course, working outward in both directions. Each unit should sit flush and level with the adjacent block. Use a dead blow hammer and shims or bedding sand, if needed, to make fine adjustments.

Check level and alignment frequently along the full length of the course. This first row is critical—it sets the foundation for the entire wall, so take the time to ensure it's perfectly level, aligned, and seated firmly on the base material.

4) ADDITIONAL COURSES

As you build additional courses, stagger the vertical seams from the course below to improve structural integrity and appearance. Before placing each new block, sweep the surface clean to remove any debris that could affect alignment or stability.

Use the alignment lugs to automatically create the proper setback from course to course. This setback helps with structural stability and creates the intended batter (lean) of the wall. Verify level and alignment frequently, checking both front-to-back and side-to-side, especially at corners and step-downs.

If your wall design requires geogrid reinforcement, install it at the specified courses per your engineered plan: Cut the geogrid to the required length and lay it flat, extending back into the slope. Position the front edge of the grid just behind the alignment lugs on top of the current block course. Secure the grid in place by installing the next course of blocks directly on top of it. Backfill with clean, compacted aggregate, covering the geogrid and ensuring consistent compaction in 6 to 8" lifts behind each course.

Continue this process, adding one course at a time, ensuring that each is level, properly seated, and backfilled and compacted before moving to the next.

5) DRAINAGE AND BACKFILLING

To facilitate water drainage behind the wall, installing a 4 inch perforated drain tile behind the base course is recommended. Always backfill the wall with clean stone to facilitate proper drainage.

Backfill the wall using granular, free-draining material. Compact material in lifts of no more than 8 inches. Avoid using clay and organic materials.

REMOVING THE LUGS

To remove the lugs, first take the unit off the pallet and place it securely. Position a chisel at roughly a 45-degree angle against the top of the lug and firmly strike it with a hammer. Ensure all lugs and any remaining fragments are completely cleared to allow the block to sit level.

SPECIAL APPLICATIONS

Palisade walls can easily incorporate features such as steps, landings, transitions to patios, fences, or tiered wall configurations. In some of these cases you may wish to install Palisade vertically (no setback). To install with no setback, remove all alignment lugs from each piece before instillation. For vertical retaining all installations above 4 feet in height, consult a qualified engineer for proper construction methods. Using adhesive is not necessary.

FINISHING TOUCHES

Wall caps are optional but recommended for a finished look. Ensure all surfaces are clean and cap blocks are properly positioned, lift and secure in place with a small amount of adhesive. Imperial Step integrates well into Palisade Wall projects.

ADDITIONAL CONSIDERATIONS

Regularly monitor the wall for seasonal movement and ensure adequate surface drainage behind the structure. Account for freeze-thaw cycles that may affect the wall's integrity.

CARE AND MAINTENANCE

Regularly brush debris from wall surfaces. Avoid high-pressure power washing to maintain surface/color integrity. Conduct annual inspections for signs of settling or drainage issues.

CUTTING PALISADE BLOCKS

Use a masonry saw or angle grinder equipped with a diamond blade for cutting blocks. Mark clearly before cutting and always wear protective equipment. Employ a water-cooled blade when possible to control dust.

GEOSYNTHETIC REINFORCEMENT

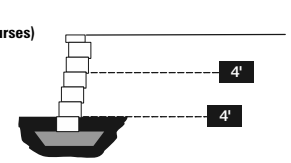
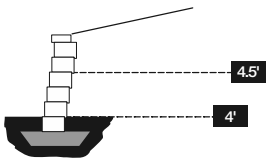
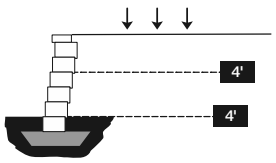
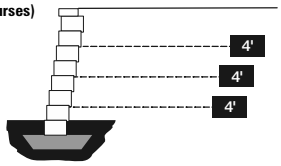
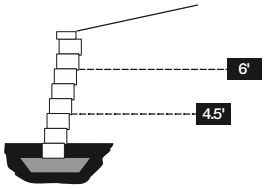
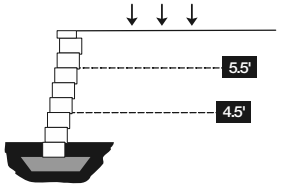
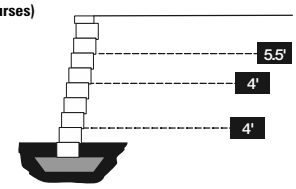
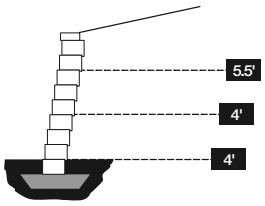
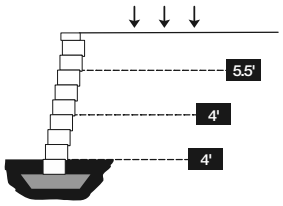
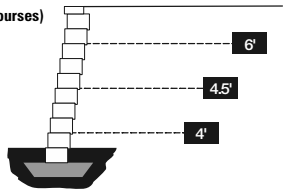
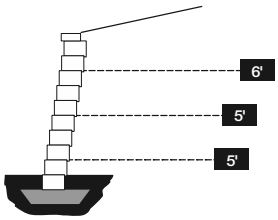
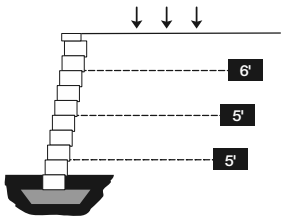
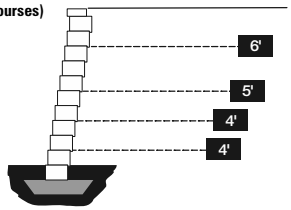
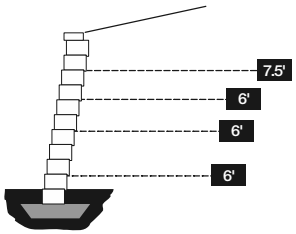
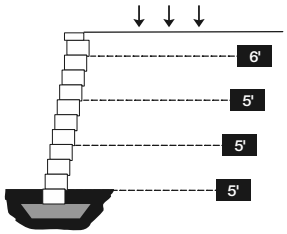
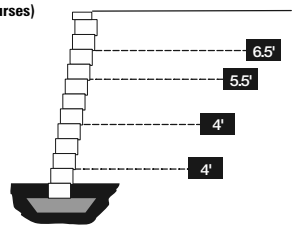
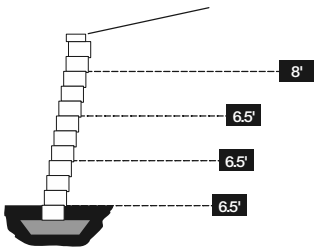
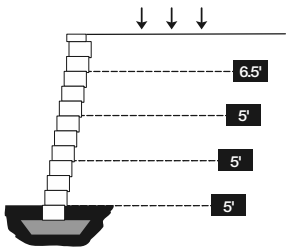
Geosynthetic reinforcement is an engineered product that is typically comprised of polypropylene, polyester, or other high tensile material. Used in conjunction with segmental retaining wall blocks, it helps stabilize the soil mass behind a wall. Depending on the wall design, the length and the number of grid layers will vary.

Generally, grid strength is in the roll direction. As it is unrolled, it is in the same direction it should be installed. Biaxial grid is another option in which the strength is the same against roll direction as it is in the roll direction.

Walls taller than 4' or any wall with a surcharge loading behind it (ie. sidewalk, driveway, building structure) should be evaluated by a qualified engineer.

Grid Reference Table

Palisade Wall with <u>Sandy Silt</u> (ø = 28°), using Strata Grid SGU40 or equivalent

	LEVEL	3:1 SLOPE	SURCHARGE: (100 lbs/sq ft)
4' Wall (6 Courses)			
5.3' Wall (8 Courses)			
6' Wall (9 Courses)			
6.7' Wall (10 Courses)			
7.3' Wall (11 Courses)			
8' Wall (12 Courses)			

The above design tables were determined using the following assumed soil parameters and conditions:
- Unit weight (γ)=120pcf for all soil types.
- Friction angles (ϕ); (ϕ)=32 degrees for Silty Coarse Sand (SM). (ϕ)=28 degrees for Silty Sand/Sandy Silt (SM-ML). (ϕ)=24 degrees Clayey Silt/Silty Clay (ML-CL).
- Designs assume a 6" compacted angular aggregate base (road base) leveling pad and swale directly behind wall. Rockwood's design charts are for preliminary use only.

A final site specific design should be evaluated and approved by a qualified professional engineer.

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