

Proto II™ Wall Systems

Post Tensioned Masonry



Proto II™ Fence Wall System

Proto II™ 4-Inch Interior Fence Wall System

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Post Tensioned Masonry

Post-tensioning of concrete has been in use for more than sixty years, and is commonly employed as a means to maximize the loading capabilities of concrete elements. Post tensioned concrete is typically employed in parking structures, office buildings, and many other structures where service loads are substantial. Residential builders are familiar with its use in floor slabs.

The specific application of post-tensioning to Proto II™ fencing has been in use for more than thirty years, and utilizes the internationally recognized benefits of post-tensioning concrete and masonry structures. It is a solidly established method of design.

Proto II's adaptation of this technology provides a site wall unlike anything obtainable with conventional masonry methods, or other less-durable, flimsy, or even toxic fencing options.

Proto II

- Will not burn
- Will not melt
- Will not release toxins or volatile gases when heated
- Will not warp
- Will not degrade over time
- Is the most environmentally friendly from cradle-to-grave of any other system
- Has the lowest embodied energy
- Has the greatest lifespan of any fence material
- Uniquely offers lower cost AND greater strength
- Is more likely to resist catastrophic forces than any other system
- Is more likely to be repairable after catastrophic events with minimal, if any, material replacement
- Uses standard ASTM C 90 cmu, so outward appearance is typical concrete masonry

Minimized Cost Volatility

Concrete and grout prices can be highly variable. Proto II™ on average consumes 50% less grout/concrete than conventional systems. Concrete masonry units (cmu) are, by far, the most price-stable material in masonry fences. Proto II™ has greater than 60% of its weight in cmu and less than 40% in concrete – the inverse of conventional walls.

Higher Strengths

The post-tensioned method yields high strength from system materials through active compression of the entire structure.

Thinner Walls

With higher structural values, less structural material is needed than required by conventional grout/rebar methods to accomplish the same end.

Smaller Footings, Less Dirt Displacement

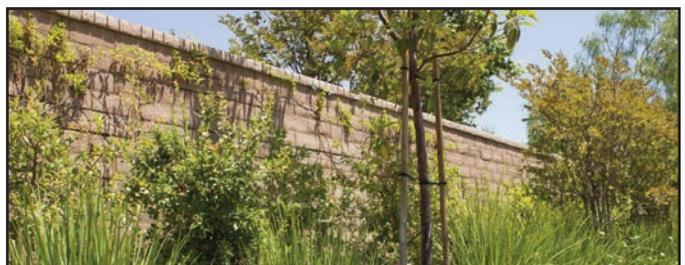
Proto II's design includes footing options that can greatly reduce the amount of digging, dirt displacement, and concrete consumption compared to conventional walls.

No Rebar and Grout Required for Proto II Fences Up to 6'-8"

Conventional walls depend upon the passive combination of rebar and grout. Proto II™ fencing uses the controlled, active method of post-tensioning to create structural integrity. The elimination of the grouting process in walls up to 6'-8" in height saves considerable time and cleanup.

Standard Plan Status

Proto II™ has been approved by a number of cities and counties, including the City of Los Angeles: Standard Plan #520 for Proto II™ Fence Walls.

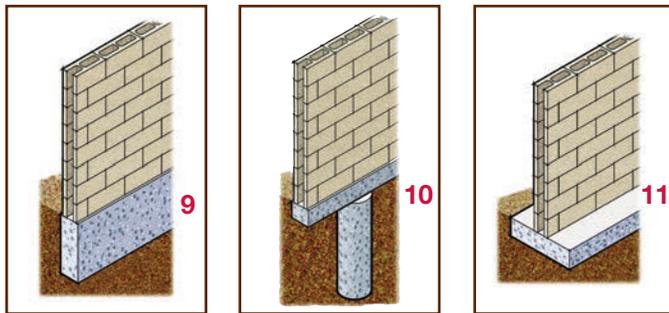


Proto II Systems

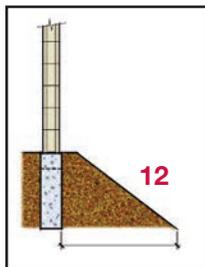
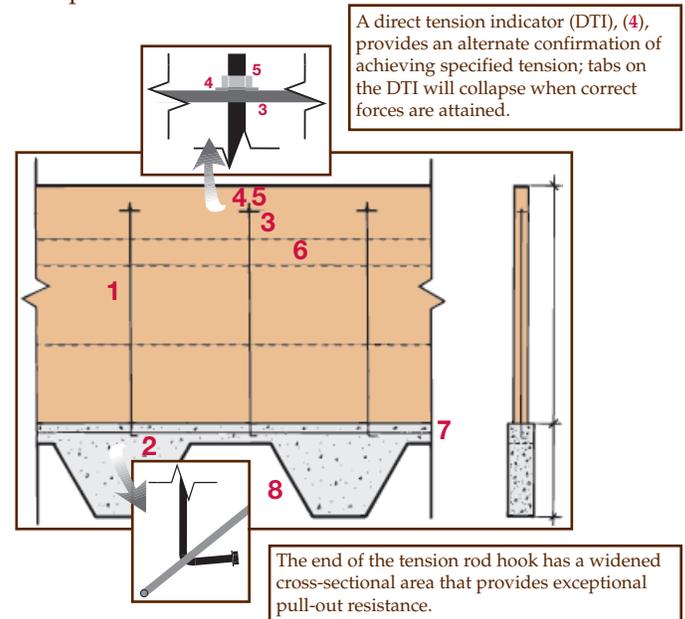
The Basic Proto II System

Consists of high strength steel tension rods (1) "L" hooked under a single rebar (2) in the footing, a 1/4" steel plate washer (3), direct tension indicator (4) and tensioning nut (5), and joint reinforcement (6) at specified locations. Walls over 6 feet in height may have additional requirements.

Four footing types accommodate a variety of site conditions: Dip Footing uses a setting pad (7) spanning a series of "dips" (8); Trench Footing (9); Pier Footing (10); and Spread Footing (11).

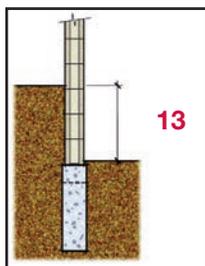


Cmu conforming to ASTM C 90 are used in the construction of Proto II™, so the completed wall will look like traditional cmu walls in every respect, including available face textures in precision, split, and Slumpstone™.



5 Foot to Daylight 2:1 Slope

Standard Proto II™ footings in Dip Footing or Trench Footing design meet the 5' to daylight requirement without increased footing depths or buried block (12), - first course is at or near grade. The amount of soil displaced can be one-third to one-fourth that of conventional footings with a corresponding reduction in concrete volume, resulting in significant savings.



Retaining

Measured in terms of "low soil" to "high soil" (13), Proto II™ walls are engineered with retaining capabilities in the basic wall design:

- 6" wide retains up to 3 feet with 6'-4" Proto II wall on top.

Engineering is also available for conditions that exceed the base design, including combinations of retaining walls for lower courses and Proto II™ for upper courses.

4-Inch Proto II for Interior Masonry Fencing

Proto II™ Wall Systems offer the perfect masonry alternative to low cost, inferior systems in interior B@100 applications.

Applications

- Wherever vinyl fencing is used
- Typical 6-foot high
- B@100, typically interior separation walls

System

- Proto II post-tension design and installation
- 4-inch wide wall with mortarless head joints for high production
- Professionally engineered, providing durability and wind resistance equivalent to 6-inch wide walls
- Far superior to vinyl in durability, safety, and marketability
- Long-term benefit to the homeowner

Materials

- 4x8x16 Proto II Tongue & Groove precision units, as stocked in Gray and Proto Tan colors
- Proto II hardware

Comparisons

See *Lot Separation*, *4-Inch ProtoII™* and *Vinyl: a Holistic Comparison*.

For More Information

Proto II™ Wall Systems:

Details and statements regarding Proto II design, engineering, construction, and performance provided by Pyramid Builders Corp., owners of Proto II™ Wall Systems.

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