

Overview: Keys to Detailing Great Single Wythe Masonry Walls



In this series of design and construction notes, we will discuss the critical aspects of how to build single wythe concrete masonry walls that will provide weather protection, energy efficiency and more than meet the test of time.

Single Wythe Masonry Wall Benefits:

Aesthetics: Concrete masonry offers long-lasting, low maintenance beauty – a variety of colors and finishes are available. For example, Spec-Brik, from the CPG, offers a traditional and beautiful look while maximizing construction efficiency using modern design principles.

Wall Cost: Single Wythe Concrete Masonry Walls are a very cost effective solution. Single Wythe Masonry is less expensive than metal frame veneered walls or pre-cast concrete.

Durability: Concrete Masonry offers unique advantages that lead to long design life, and the ability to withstand extreme weather events. It also is an excellent choice for fire safety considerations.

Energy Efficiency: Concrete masonry walls can be pre-insulated to combine the energy conservation benefits of thermal mass with enhanced insulation to provide durable, energy efficient wall assemblies.

QUICK POINTS

- Single wythe walls are drainage walls—the cores in the units provide a path for moisture to drain.
- Spec-Brik WCT is a masonry unit that is designed to optimize single wythe walls – it has integral water repellent and a special design to encourage water to drain properly.
- Include flashing and weeps at any location where the drainage paths in the wall are blocked by bond beams, lintels or other features.
- Use a post-applied breathable colorless sealant to provide extra weather protection.

Keys to Detailing Great Single Wythe Walls

Following a few cost-effective construction details can assure code compliance (and great results) when building single wythe walls. These details typically will be part of a good plan set and specifications. Single Wythe walls are either fully grouted or partially grouted for structural reinforcement. Typically fully grouted walls are used in areas where seismic considerations require extra reinforcement. Since they are fully grouted, they are quite resistant to moisture penetration.

Partially grouted single wythe walls are drainage walls – they are designed so that moisture can drain within the wall and exit to the exterior. In fact, masonry walls have a unique advantage. The cores in the blocks line up to provide a vertical passageway for drainage or reinforcement. The details and construction techniques to assure that this type of wall performs well and looks beautiful for years to come are straightforward and easy to build.

- The specification should include masonry units and mortar that include integral water repellent. Ideally, the wall can also use innovative CMU designs that encourage proper drainage, such as WCT (Water Control Technology) from the Concrete Products Group
- The wall includes flashing and weeps at any horizontal interruptions of the wall's drainage cavities so that if any moisture reaches the interior of the wall, it can readily drain to the exterior.
- Properly detailing the wall with appropriately placed movement joints, horizontal joint reinforcement, and properly tooled mortar joints is another key to success.
- The wall is sealed using a clear, breathable and penetrating sealant that is applied after the wall is built and cleaned. Some sealants will protect the wall from moisture penetration even if hairline cracking occurs.
- In climate zones where thermal properties are key, use pre-insulated masonry units such as Korfil Hi-R or Hi-R H to meet even the most stringent Energy Code requirements
- Using a sample panel to demonstrate the wall features, including all masonry details, cleaning means and methods, and sealing sets the standard for acceptance of the finished wall and is a cost effective way to assure all parties – the owner, architect, and contractor are on the same page.

Conclusion

Concrete Masonry Walls provide a cost-effective means to build resilient, energy efficient wall system that will serve for many years to come.



Questions?

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