

## Foundation Underpinning



Foundation support of 3 story Science Building, Western State College.  
---Gunnison, CO

**F**oundation underpinning is a process of modifying the existing foundation system of a structure, which is unable to carry existing loads or additional loads within the existing soil conditions.

Methods of underpinning include the construction of new or larger footings, driven piles, drilled piers, helicals, screw piles, and hydraulic driven piers. Piering systems are typically drilled or driven deep into the soil and supported into load-bearing strata.

Mays Construction Specialties, Inc. utilized many different techniques and systems such as micropiles, push/resistance piers, helical piers, compaction grouting and conventional underpinning with concrete footings to raise and provide stabilization of many different types of structures.

From underpinning multi-story buildings and bridges to small commercial buildings and residential structures, MCSI has the experience and proven record to handle a wide range of foundation mitigation and underpinning.



Underpinning at Northwest Community College. ---  
Rangely, CO



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**P**ier systems can be installed in either an interior or exterior location. Every pier system provides for a two-stage system of initially driving the manufactured piers to a load-bearing support, then using hydraulics, restoring the structure to the desired elevation.

Mays Construction Specialties, Inc.'s pier systems actually restore the foundation, not only stop settlement, but also raise the structures, closing cracks and correcting other structural flaws caused by settlement and/or ground movement.

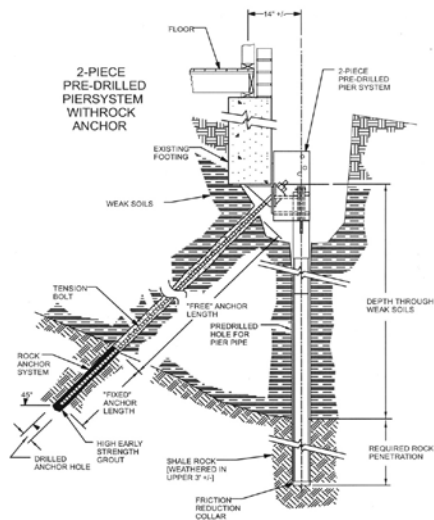


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## Resistance Piers



Resistance pier systems not only stop settlement, but they actually restore the foundation and the structure in most cases to their original or desired position. Using portable equipment they are ideal for hard access and low overhead areas where foundation underpinning is needed.

The pier systems are an assembly of structural steel components that includes a pier head assembly attached to the foundation or column, which is then mounted on a steel pier that is installed to bedrock or load bearing stratum.

The unique friction reduction collar on the lead section of the pier reduces skin friction on the pier pipe during installation. The purpose of the collar is to create an opening in the soil that has a larger diameter than the pier pipe. This dramatically reduces the skin friction on the pier pipe as it is driven into the soil. This feature allows the installer to load test and verify that the pier encountered firm bearing stratum or rock that is suitable to support the design load. Piers have been successfully driven to depths of 200 feet to insure proper and verified support.

Piers are spaced at pre-determined centers where each pier is driven to a suitable stratum and then tested to a force greater than required to lift the structure. This procedure effectively load tests each pier prior to lift and provides a measured Factor of Safety on each pier at lift.

### Benefits / Advantages:

- Capacities to 150 kips
- Certified materials
- Corrosion protected
- Engineered system
- Environmentally friendly
- Fast installation
- Least costly method
- Load carried on top of pier
- Measured design load (each pier)
- Measured factors of safety
- No angled support
- No guesswork
- No heavy equipment
- No lateral movement of pier assembly
- No vibration
- Unified non-rust galvanized steel composition

**M**CSI is qualified and/or certified in the installation of these materials and systems (this is a partial list)

- 3M
- Atlas Systems
- Avanti International
- Cellular Concrete LLC (CLSM)
- Con-Tech Systems, Inc.- Ischebeck/Titan
- Dayton Superior
- DeNeef
- Dex-o-tex
- Dow Corning
- Dwydag-Systems International (DSI)
- Earth Contact Products (ECP)
- Euclid
- General Polymers
- Green Mountain
- L.M. Scofield
- Maccaferri
- Master Builders
- Prime Resins
- Quickrete
- Sika
- Sivento
- Sonneborn
- Strata-Tech, Inc.
- Super-Krete
- TenCate (geo-synthetics)
- Tremco/Vulkum
- USG Levelrock
- Williams Form Engineering
- Xypex