

Basis of Design

This section applies to the design and installation of excavation shoring. This includes soldier piles, tiebacks, and soil nails etc.

Design Criteria

- Shoring shall be designed by the engineer of record. Contractor designed shoring is not acceptable.
- Base shoring design on the recommendations in the Geotechnical Engineering Report.
- Neither Owner nor Consultant shall be responsible for the interpretation drawn by the Contractor from any subsurface information received from the Owner or Consultant.
- It shall be the Contractor's responsibility to satisfy themselves regarding subsurface conditions.
- At shoring for structures located below the water table, locate the shoring walls a sufficient distance outside the face of the permanent basement walls to allow for proper installation and inspection of positive-side waterproofing.
- In regard to pile, tieback, and soil nail installation; an "Obstruction" shall be defined as rocks or logs over 24 inches in diameter. Owner will only be responsible for additional costs if obstruction is greater than 24" in any direction.
- Shotcrete utilized with a soil nail system shall meet the requirements found in the most current applicable Seattle DPD Director's Rule. This requirement applies to all UW properties.
- Shotcrete utilized with a soil nail system shall not be used for permanent perimeter below grade walls where adjacent to occupied spaces.
- Soldier piles used as underpinning shall be jacked as specified by the engineer of record to preload the piles to prevent settlement of the existing building.

Design Evaluation

- Schematic Design Phase: Indicate type of shoring and locations proposed.
- Design Development Phase: Plan showing shoring locations, typical sizes and sections. Draft specifications.
- Contract Document Phase: All notes, plans, wall elevations and details required for the installation of shoring. Final specifications.

Construction Submittals

- Product data: For each type of material indicated
- Provide a detailed sequence and procedure for shoring construction for review 21 days prior to any shoring installation

Quality Assurance

- Testing and inspection services will be provided by the Owner. The Contractor shall cooperate and provide access and samples when requested by the Owner.
- See Concrete and Structural Steel sections for material inspection.

Related Sections

- Facilities Services Design Guide - General Requirements - Structural
- Facilities Services Design Guide - Foundations
- Facilities Services Design Guide - Sub-Grade Walls
- Facilities Services Design Guide - Concrete
- Facilities Services Design Guide - Structural Steel
- Facilities Services Design Guide - Thermal and Moisture Protection

Products, Material and Equipment

- See Concrete.
- See Structural Steel
- Minimum structural concrete strength for drilled shafts is 3000 psi.
- Minimum concrete strength for lean mix concrete is 1000 psi.
- Lagging shall be pressure treated.

Installation, Fabrication and Construction

- In general, comply with industry standard practice.
- Provide unit price section in specifications for temporary casing of drilled shafts where casing may be needed due to field conditions including groundwater and caving.
- Concrete placed into drilled shafts around soldier piles shall be conveyed in a manner to prevent separation or loss of materials. In no case shall the concrete be allowed to freefall more than 5 feet. Tremie concrete where required.
- All voids behind lagging shall be filled prior to excavating subsequent lifts. Use material and method that will not interfere with the free drainage system.
- Remove top of shoring system a minimum of 3 feet below finished grade. Also remove additional depth as required by the local municipality or adjacent property owner.

END OF DESIGN GUIDE SECTION