

# Auger Cast Pile & Drill Displacement Pile

ACP

DDP



## Geologic Hazard Application

- Soft/Loose Soil
- Liquefaction
- Contaminated Soil
- Lateral Spread
- Slope Stability

Diameter/Depth  
14, 16, 18, 24 in dia  
20 – 100 ft deep

Compatible Soils  
Sand (SP, SM, SC)  
Silt (ML, MH)  
Clay (CL, CH)  
Contaminated Soil - DDP  
Undocumented Fill

Bearing Capacity Range  
100 – 800+ kips

## Key Advantages

Deep pile with ground improvement - DDP  
High capacity  
No vibration  
Low spoil - DDP  
Steel reinforcement  
CBC compliant

## Key Considerations

Deep pile  
Engineered grout  
Low spoil - DDP  
Concrete cleanup  
Flat stable pad  
Pile connections

## Comparable To

Auger pressure grouted piles  
CFA Piles  
Driven piles  
Concrete piers  
Torque/pipe piles

## Overview

**Auger Cast Pile and Drill Displacement Pile (ACP and DDP)** systems are partial and full displacement, well-defined, pressure grout, structural pile, deep foundations. ACP/DDP provide well-defined, steel-reinforced, concrete piles with reliable, high capacity support of heavy foundation loads. Traditional ACP uses a continuous flight auger to drill thru dense soil. DDP uses a displacement drill to compact soil in the ground, resulting in higher capacity and low spoils. The large cavity expansion effect of DDP displaced soil produces higher strength. DDP is essentially the “low-spoil” and higher capacity version of ACP. ACP/DDP strength and reliability are also enhanced by the pressure grout effect during construction. ACP/DDP construction produce low noise and no vibrations. ACP/DDP are used the same as a driven pile; to support heavy structures on soft and weak soil at deeper more competent soil or on bedrock. ACP/DDP provide reliable, strong, deep foundation support for heavy loads with reduced settlement.

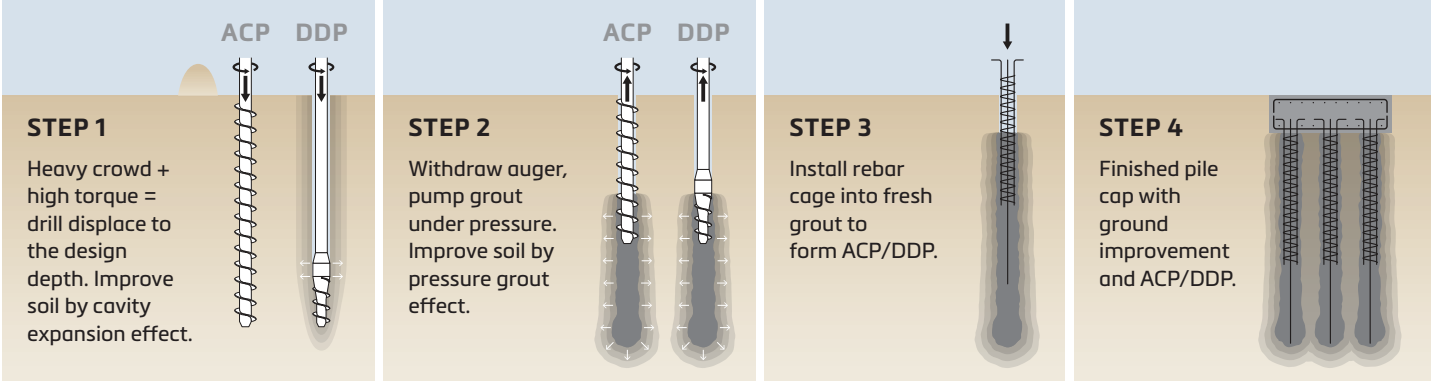
## ACP/DDP Applications

Support very heavy foundation loads, structural slabs, structural mats, and industrial foundations. The ideal applications for ACP/DDP:

- 1) Soft and loose soil sites and bay mud/sensitive soil sites.
- 2) DDP at contaminated soil and undocumented debris fill sites.
- 3) Structures with high lateral forces.
- 4) Groundwater protection regions.
- 5) Sensitive sites with vibration concerns near critical structures.
- 6) Sites near occupied buildings and in dense urban areas.

# ACP DDP Auger Cast Pile & Drill Displacement Pile

## 4-Step Construction Process



## Technical Details

**Auger Cast Pile and Drill Displacement Pile (ACP and DDP)** are mainstream in California and the West Coast. ACP use partial displacement, continuous flight augers in dense soil regions. The DDP method utilizes an improvement to common ACP construction. The DDP displacement tool is shaped to laterally displace and compact the adjacent soil into the ground. The displacement tool and the pressure grout effect result in a coarse sided pile with finished diameters greater than 100% of the neat tool diameter. The soil displacement produces cavity expansion effects that 1) increase shear strength, 2) increase density, 3) increase over-consolidation, 4) reduce void ratio, and 5) increase stiffness of the confining soil. These physical benefits of DDP construction result in reliable, high capacity, deep foundation piles.

Engineered steel rebar cages are installed into the structural grout to resist the vertical, lateral, and uplift loads. ACP/DDP with an expanded base can achieve much higher end bearing capacity than traditional concrete piers and driven concrete piles. Full-scale, instrumented, load tests to 200% confirm vertical bearing and uplift capacity. Lateral load tests can be performed to confirm lateral capacity.

Farrell uses heavy, fixed mast, piling drill rigs to install ACP/DDP. Farrell operates Leibherr, Casagrande, and Bauer rigs. These rigs install ACP/DDP to depths of 20 to 100 feet. Farrell installs ACP/DDP with tool diameters of 14, 16, 18, and 24-inches. The rigs are equipped with electronic monitoring to record drill torque, drill depth, drill speed, grout pump pressures, and grout volume for engineer review.

ACP/DDP are well-defined, high capacity, structural, deep foundation piles that support your project to *Go Vertical with Confidence*®.

## Testimonial



Archer Hotel  
Napa, CA

“James and the Farrell team throughout 10 weeks on site kept safety, communication, and a clean site up to date each day in a professional manner. Working with this field crew was a pleasure... and I look for another successful job with Farrell.”

**Brian Hansen**  
DEACON