

Noise Office - 2018 Pile Driving FAQs



What is driven pile?

Driven piles are a form of building foundation that provide support for structures, transferring their load to layers of substrate that have sufficient weight-bearing capacity and suitable settlement capacities. A driven pile is a long, slender column made of preformed material that can be installed by impact hammering, vibrating, or pushing it into the ground to a design depth. A pile hammer is used to drive piles into the ground to bring the foundation to the proper weight bearing capacity.

What is continuous flight auger drilling (CFA)?

Continuous flight auger drilling originated in the UK in 1966. It became used more significantly in the early 2000s in the USA. CFA piles are a type of drilled foundation in which the pipe is drilled to the final depth in one continuous process. At the same time the auger is withdrawn from the hole, concrete or a sand/cement grout is placed by pumping the concrete/grout mix through the hollow center of the auger pipe to the base of the auger.

Can CFA be substituted for driven pile?

In some cases, yes. However, they work best in soils that are medium to stiff clay, silty soils and well-graded sands, and rock.

There are inherent problems for soils with highly variable ground conditions, ground conditions requiring uncommonly long piles (over 100 feet), and contaminated soil. In short, many of the conditions close to the banks of the Willamette River work most effectively using driven pile.

An additional consideration with CFA in places where soil is contaminated is the fact that the contaminated soil, once underground, will be brought to the surface, where it will need to be contained and trucked across the Columbia River Gorge to Arlington. Additionally, workers on these projects are required to get a baseline blood measurement before beginning the project, and then another every six-weeks to determine if contaminants are being introduced into their system and affecting their health.

Why does pile driving need to be used during construction?

Pile driving is just one of many ways to set deep foundations in new buildings. It may be needed if the bedrock is variable, or 100 feet below the surface of the soil, or if the soil is contaminated. A geotechnical engineer determines what type of foundation will be used to stabilize new construction.

Does this happen a lot in Portland?

No. In fact, during a four-year period, it was used a total of 17 times.

Are there a lot of noise complaints about pile driving?

In the same four-year period, one project in the Pearl District garnered 27 complaint calls. Beyond that, there have been three calls about a project in Swan Island. One call was a complaint, and the remaining two were questions about what the callers were hearing.

Is there any way to make pile driving quieter?

Some methods have been attempted, but they have not been tested enough to determine whether they are practical, or safe for those working on the construction site.

Do other cities regulate pile driving?

Most cities simply rely on allowable hours. In 2015, the Noise Review Board changed code to limit the hours between 8:00 am and 6:00 pm, Monday through Friday.

Do overriding regulations place limits on the constraints the noise code can enact?

Yes. *Oregon State Building Code 2017 ORS 455.040 states that State Building code preempts local ordinances and rules:*

The state building code shall be applicable and uniform throughout this state and in all municipalities, and no municipality shall enact or enforce any ordinance, rule or regulation relating to the same matters encompassed by the state building code but which provides different requirements unless authorized by the Director of the Department of Consumer and Business Services.

Does pile driving happen in all neighborhoods in the City?

Much of the pile driving projects take place near riverbanks, where the soil conditions make it the more reliable and cost-effective method choice.

What does the Noise Code Exemption Mean in Title 18 of the Portland City Code?

The Portland City Noise Code incorporates a convention exempting a series of construction equipment from having any specific sound limitations or decibel level limits when operated during the daytime.

This convention was established with the understanding that many pieces of equipment are not practical to install or engineer sound abatement methods to help protect the public from the loudest forms of construction.

Why not remove the exemption for pile driving from Title 18?

Removing the exemption would not stop pile driving. Geotechnical engineers make the determination as to which method of setting foundation is the safest and cost-effective method. Removing the exemption would simply take longer, while the contractor goes before the Noise Review Board to request a variance.