

# ATPD-2380: ADVANCED PILE DRIVING ON WATER

## Cuyahoga Community College

**Viewing: ATPD-2380 : Advanced Pile Driving on Water**

**Board of Trustees:**

September 2025

**Academic Term:**

Fall 2025

**Subject Code**

ATPD - Applied Ind Tech-Pile Driving

**Course Number:**

2380

**Title:**

Advanced Pile Driving on Water

**Catalog Description:**

In depth study of pile driving on water. Topics include sheet pile and caissons, auger cast pile, cofferdams, stone setting, and extraction.

**Credit Hour(s):**

2

**Lecture Hour(s):**

2

## Requisites

**Prerequisite and Corequisite**

ATCT-1301 Introduction to Carpentry, and departmental approval: admission to Pile Driving Technology apprenticeship program.

## Outcomes

**Course Outcome(s):**

Layout, rig-up, lace, stab, manipulate, extract, open-up, crowd, pull, fresh head, manipulate, cut, shake out, arrange, and stagger sheet pile while using proper tools, rigging techniques, avoiding embedment, and properly rigging up sheets and positioning dunnage.

**Objective(s):**

1. Layout, rig-up, lace, stab, and manipulate sheet pile on water.
2. Extract sheet piling and conduct proper stacking
3. Avoid embedment by properly removing sheet piling.
4. Fresh head sheet piling
5. Properly rig-up sheets using tag lines
6. Lace sheet piles from sturups
7. Open-up, crowd, pull, and manipulate sheet pile around template.
8. Cut picking holes at prescribed depth in head of sheet pile.
9. Shake out sheet pile.
10. Arrange sheet piles in stacks and multiple lifts
11. Stagger sheet pile heads.
12. Properly position dunnage.
13. Use proper tools and rigging that pertain to sheet pile.

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**Course Outcome(s):**

Identify cofferdam configurations and describe components, then erect members of template and brace cofferdam during excavation of driven sheets.

**Objective(s):**

1. Identify cofferdam configurations for water construction.
2. Describe component members of cofferdam template.
3. Erect various members of cofferdam template in correct sequence.
4. Brace cofferdam during excavation of driven sheets.

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**Methods of Evaluation:**

1. Quizzes
2. Exams
3. Classroom participation
4. Completion of assigned projects.

**Course Content Outline:**

1. Concepts
  - a. Tools used in cofferdam templates including safety glasses, hard hat, leather palmed gloves, and work boots.
  - b. Equipment used in cofferdam templates including steel cofferdam and installation template.
2. Skills
  - a. Designing cofferdam templates using specific components such as pin pile, waler lookouts, upper and lower walers.
  - b. Designing templates with waler dimension by determining template and following waler rules and factors of waler lengths.
  - c. Handling sheet pile with tools such as rigging belt, 22 oz. hammer, wrench, side cutter piles, equipment bags, hard hat, leather palm gloves, coveralls.
  - d. Handling sheet pile equipment including steel bars, rig and rigging, chain saw and accessories.
  - e. Handling sheet pile materials including sheet piling and dunnage.
  - f. Following proper procedures for rig set up, arranging sheets, handling sheets, positioning sheets, dunnage, and cribbing.
  - g. Preparing sheet pile by fresh heading sheet pile, sniping sheet pile, cutting picking holes, rigging sheet pile, and taglines.
  - h. Constructing pile by finding starting point, prepping sheet pile, rigging up with sheet shackles, picking up, positioning, stabilizing, and aligning.
  - i. Extracting pile by positioning crane, rigging up, pulling pile, burning hole, placing dunnage, and completing.

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

**Resources for the Instructor**

United Brotherhood of Carpenters. *Pile Driving*. First ed. Washington: United Brotherhood of Carpenters, 2001.

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APE. *American Piledriving Equipment*. First. Kent, WA: APE, 1998.

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Associated Pile and Fitting Corp. *Design Installation of Driven Pile Foundation*. First ed. Clifton, NJ: Associated Pile and Fitting Corp., 2004.

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Northern California Pile Drivers JATC. *Pile Driving Land and Water Advanced*. First ed. Northern CA: Northern California Pile Drivers JATC, 1991.

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