

# OPERATING ENGINEER (GRADE & PAVING EQUIPMENT)

## APPENDIX A

O\*NET CODE 47-2073.00

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

### WORK PROCESSES

	<b>Approximate Hours</b>
<b>A. Graders</b>	<b>500 – 700</b>
1. Assist in servicing, maintaining, and adjusting the machine (if applicable)	
2. Operate and assist in the different types of work the machine does, such as fine grading, back sloping, mixing, and laying oil, etc.	
3. Operate elevating graders; maintenance (if applicable)	
4. Assist in installing and using different types of laser guidance systems and/or global	
5. positioning attachments	
<b>B. Scrapers, Self-Propelled</b>	<b>300 – 400</b>
1. Operate various motor and motor-electric driven machines	
2. Make proper cuts and fills to the grade stakes	
3. Assist in servicing, maintaining, and repairing the different makes of machines (if applicable)	
<b>C. Compaction Equipment</b>	<b>200 – 300</b>
1. Operate different types of rollers and other compaction equipment using different procedures for compacting various materials	
<b>D. Tractor-Type Skip Loaders/Hi-Lifts</b>	<b>350 – 500</b>
1. Operate; service and make minor repairs and adjustments (if applicable)	

<b>E. Wheel-Type Tractors, including Forklifts, Lumber Carriers, etc.</b>	<b>250 - 300</b>
1. Assist in servicing, maintaining, and making minor repairs and adjustments (if applicable)	
2. Operate	
<b>F. Grade Stakes</b>	<b>400 – 600</b>
1. Check, read, and set grade stakes and read plans	
<b>G. Trenching Machines</b>	<b>300 – 500</b>
1. Operate all types and sizes of machines; maintain and repair (if applicable)	
<b>H. Bulldozer</b>	<b>300 – 450</b>
1. Operate on the different types of work assigned the dozer from pioneer and rough excavation to finish work	
2. Assist in making minor adjustments and repairs, and work with the mechanic on major repairs (if applicable)	
<b>I. Scrapers, Towed</b>	<b>350 – 550</b>
1. Operate properly	
2. Service, adjust, and change cables on cable-controlled machines (if applicable)	
<b>J. Miscellaneous Equipment</b>	<b>300 – 500</b>
1. Operate all types of pumps; service and adjust (if applicable)	
2. Operate all pumping machines, such as pump crete machine, concrete pump, gunite machine, etc.; maintain machines (if applicable)	
3. Install and operate well-point systems; maintain (if applicable)	
4. Operate all types of mechanical heaters; service and adjust (if applicable)	
5. Operate all types of electric generating plants; service and adjust (if applicable)	
6. Operate all other types of equipment, air compressors, and all auxiliary equipment; service and adjust (if applicable)	
<b>K. Asphalt and Concrete Paver</b>	<b>400 – 650</b>
1. Operate and also become familiar with control of mixing time apparatus	

2. Assist in making adjustments and repairs and to service machines (if applicable)
3. Operate and set-up screed; make mechanical and electronic adjustments (if applicable)
4. Operate and set-up finishing machine; make mechanical and electronic adjustments (if applicable)

**L. Special Paving Equipment** **250 – 350**

1. Operate gutter pavers, curb pavers, vibrators, concrete saws, pavement breakers, and similar equipment: service and adjust (if applicable)
2. Operate chip spreader; make adjustments and repairs (if applicable)

**M. Maintenance; Cutting and Burning; Greases and Oils** **100 – 200**

1. Use various welders and welding equipment
2. Assist in making minor repairs and adjustments (if applicable)
3. Perform minor welding repair (if applicable) and cutting
4. Use proper types of greases and oils (if applicable)

**N. Handling Hazardous Materials (optional)** **40 – 300**

**Approximate Total Hours** **4,040 – 6,300**

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <https://dol.ny.gov/public-work-and-prevailing-wage>.

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## **APPENDIX B**

### **RELATED INSTRUCTION**

#### **Safety and Health**

1. Drug & alcohol awareness
2. OSHA rules and regulations
3. OSHA 10-Hour Construction Course – if required for Public Work
4. First aid/CPR (minimum 6.5 hours every 3 years)
5. Sexual Harassment Prevention Training – must comply with section 201-g of the Labor Law

#### **Commercial Driver's License Preparation**

1. Testing requirements
2. Inspection stipulations
3. Driving course

#### **Use of Grade Instruments and Plans**

1. Transit and hand level
2. Theodolite
3. Leveling rods
4. Measurement instruments
5. Stakes

#### **Soil Compaction**

#### **Equipment Skills (technical training and seat time)**

1. Forklift and skidsteer loader/driver; forklift certification
2. Backhoe
3. Dragline
4. Forklift and skidsteer loader/dozer
5. Compactor
6. Clam

#### **Mechanical Systems (if applicable)**

1. Basic hydraulics
2. Power trains

### **Maintenance and Adjustments to Equipment (if applicable)**

1. Fuels and lubricants
2. Fuels, oils, grease and equipment
3. Grease truck and tools
4. Hydraulic systems

### **HazMat Training (required if Work Process “N” on Appendix A is selected)**

1. 40-hour certification course
2. Safety review, refresher training, and re-certification as required

### **Interpersonal Workplace Skills**

1. Industrial and labor relations
  - a. History and background (6 hours, first year)
  - b. Current laws and practices (14 hours, second year)
  - c. Diversity

### **Other Related Courses as Necessary**

A minimum of 144 hours of Related Instruction are required for each apprentice for each year, with a minimum requirement of three years (432 hours).

Appendix B topics are approved by New York State Education Department.