

SIMLOG

The Standard in Cost-Effective Simulation
for Training Heavy Equipment Operators

Combining Industry Partners and
Heavy Equipment Simulators
for Program Success at Ocean County VTS

December 1, 2022

Speakers

Ocean County Vocational Technical School (NJ)

Simlog

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Overview

- ▶ Simlog and our “Personal Simulators”
- ▶ alignment with NCCER’s curriculum
- ▶ Ocean County’s customer success story
 - job prospects for heavy equipment operators in the construction industry
 - details about their program for training heavy equipment operators

Simlog, the CTE Market Leader

- ▶ more than 3,500 software licenses sold
- ▶ reselling partners all around the world
- ▶ customers in 70 countries products
- ▶ 500 CTE programs in North America
- ▶ “Personal Simulators” for 16 different kinds of heavy equipment

Sample Products for Heavy Equipment Operations



Skid Steer Loader



Backhoe Loader



Hydraulic Excavator



Bulldozer



Wheel Loader



Forklift



Mobile Crane



Off-Highway Truck

Multi-Purpose Setup with Tabletop Replica Controls



Backhoe Loader
Skid Steer Loader
Wheel Loader

Hydraulic Excavator

Bulldozer

Mobile Crane

(also Forklift, with joysticks)

Custom Travel Case for Easy Portability



Sample Setup with Four Displays



Backhoe Loader Personal Simulator

Multi-Purpose Operator Chair



Backhoe Loader
Skid Steer Loader
Wheel Loader

Hydraulic Excavator

Bulldozer

Mobile Crane

(also Forklift, with joysticks)

Sample Setup with 4 Displays



Backhoe Loader Personal Simulator

Alignment with Certification Standards

Our *Instructional Designs* are developed to “align” with standardized training curricula.

In the construction industry, we look to the NCCER and their *operator certification* standards:

- *know* enough: Knowledge Exam (theory)
- *do* enough: Practical Exam (demonstrating skills)

WHAT IS NCCER?



- Not-for-profit Education Foundation
- Created in 1996 as *The National Center for Construction Education and Research (NCCER)*
- Support of more than 125 construction executive, association and academic leaders
- Revolutionized construction industry training

Mission:

To build a safe, productive and sustainable workforce of craft professionals.



NCCER Headquarters: Alachua, FL

NCCER OFFERS...



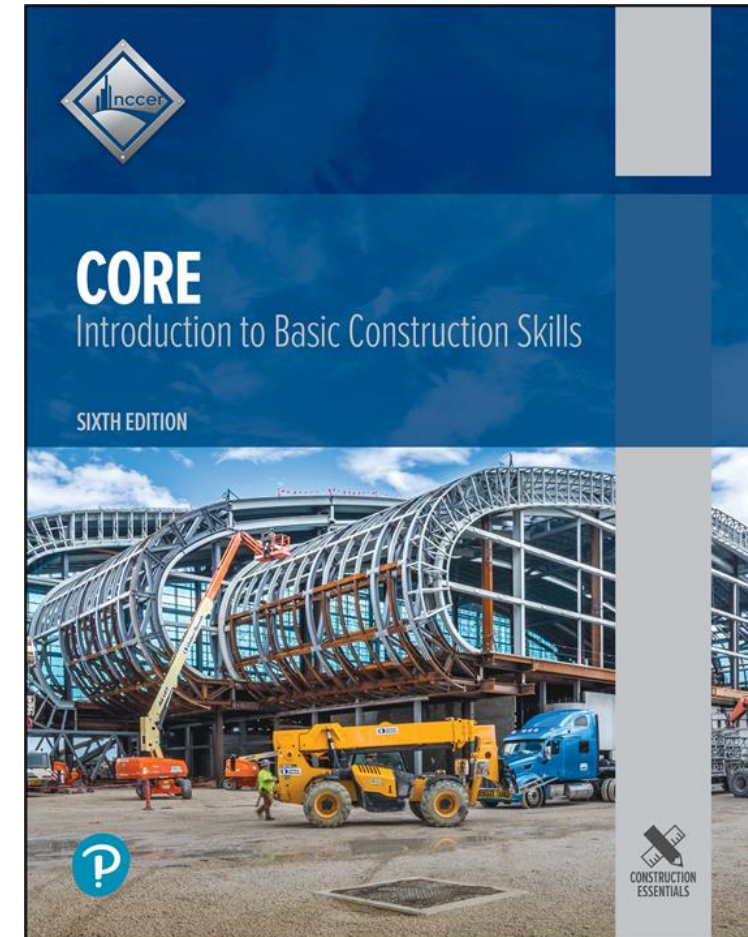
- Standardized Construction Craft Training
- Written and Performance Exams
- Portable Industry Recognized Credentials
- Meets DOL Apprenticeship Requirements (Classroom Based Component)
- Seamless transition into industry
- Journey Level Craft Assessments (industry)



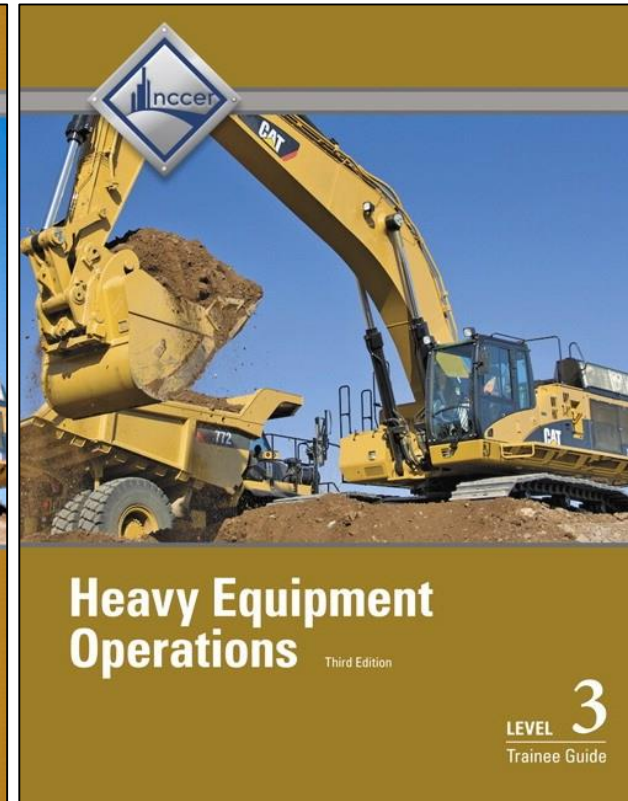
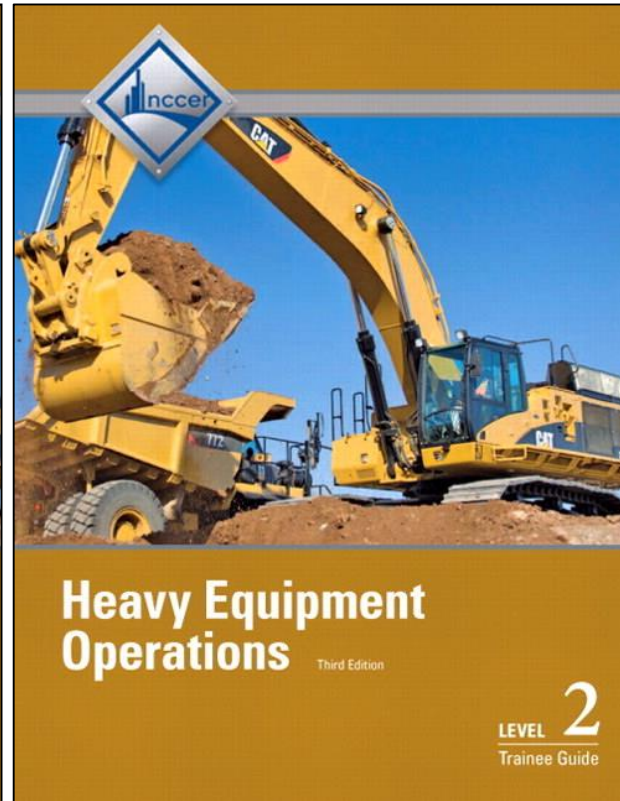
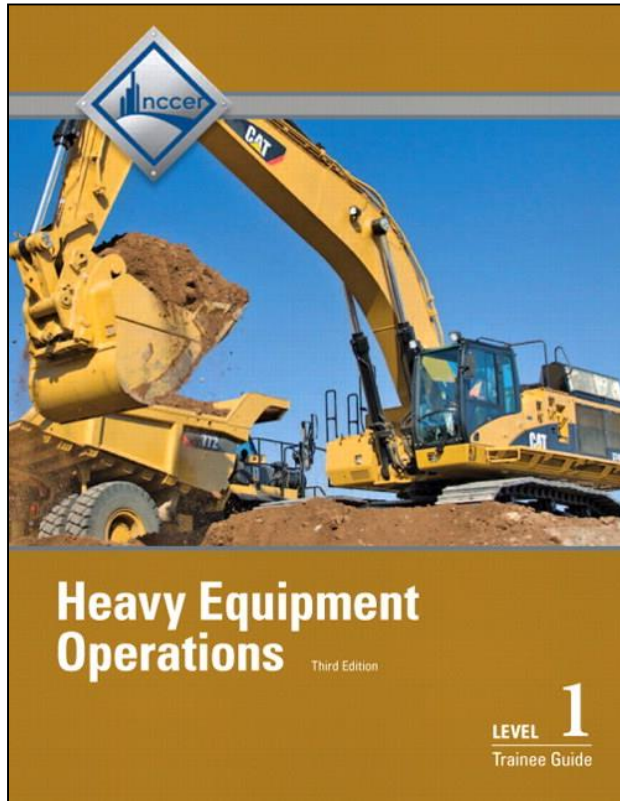
NCCER Core Curriculum and Credentials



- 1.) Basic Safety (Construction Site Safety)
- 2.) Introduction to Construction Math
- 3.) Introduction to Hand tools
- 4.) Introduction to Power Tools
- 5.) Introduction to Construction Drawings
- 6.) Introduction to Basic Rigging
- 7.) Basic Communication Skills
- 8.) Basic Employability Skills
- 9.) Introduction to Materials Handling



NCCER'S HEO CURRICULUM SERIES



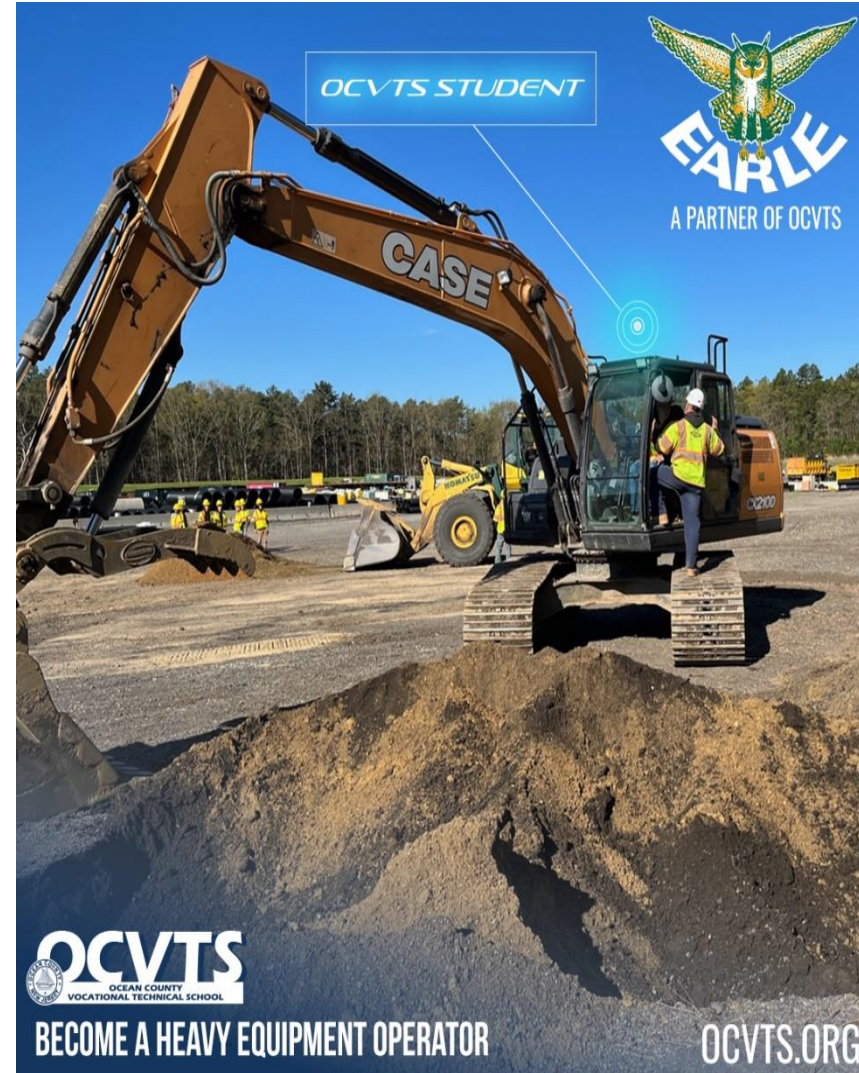
Sample “Crosswalk” for Skid Steer Loader Operations

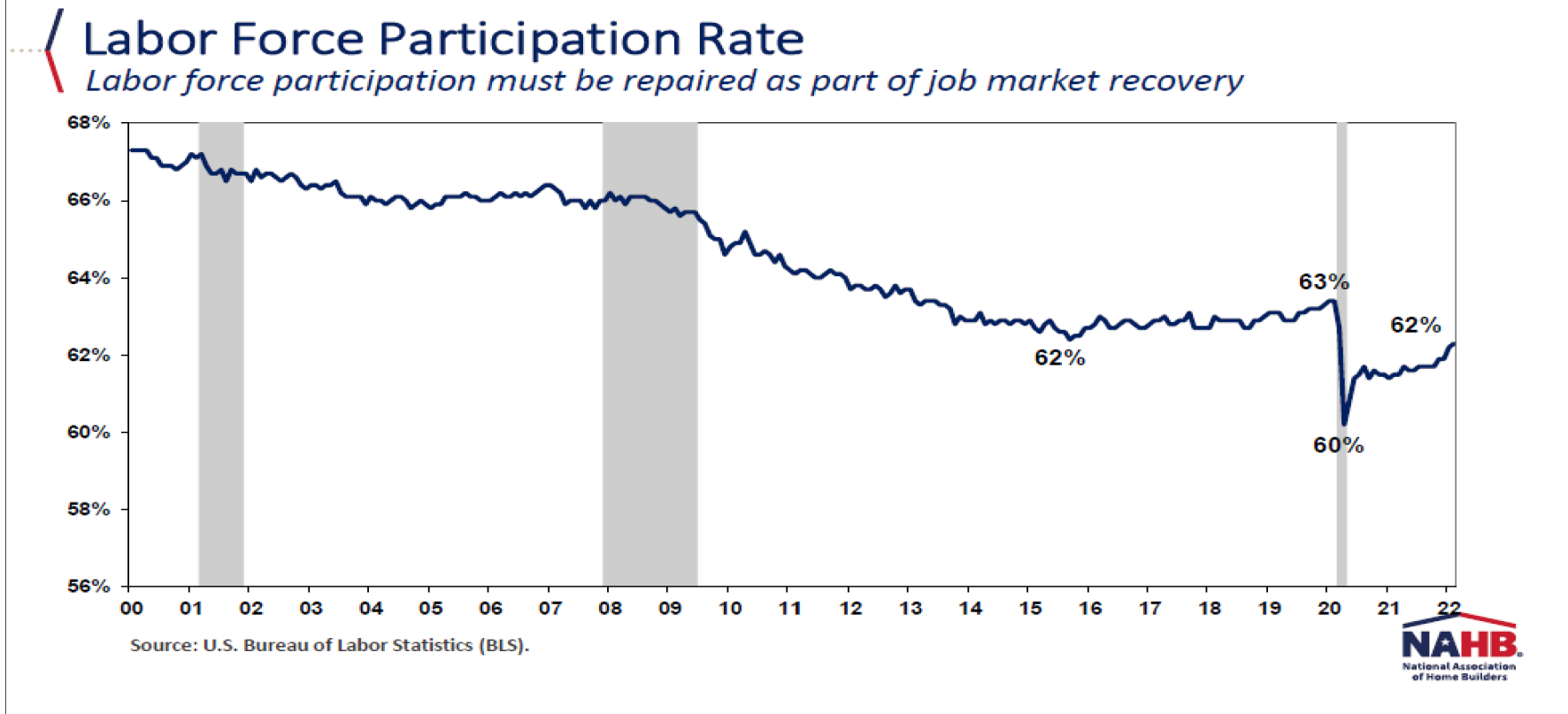
NCCER Practical Exam Task	Simlog Simulation Module
Steering on Level Ground	Controls Familiarization, Positioning, Stockpiling 1
Maneuvering on Slopes	Load Handling 1 and 2, Stockpiling 2
Working with the Forks Attachment	Load Handling 1, 2, and 3
Loading a Dump Truck on Level Ground	Truck Loading
Working with Stumps and Boulders, Grading on Level Ground	Stockpiling 1

Customer Success Story: Ocean County Vocational Technical School

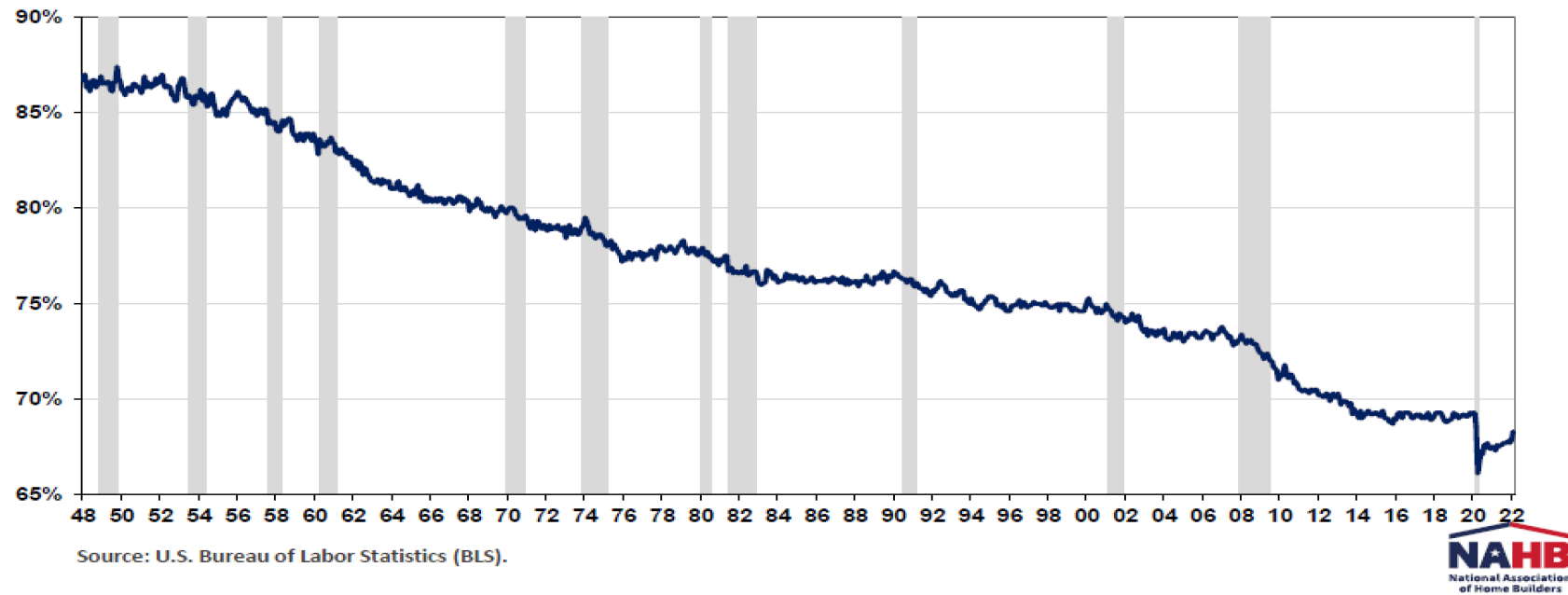


Success Story

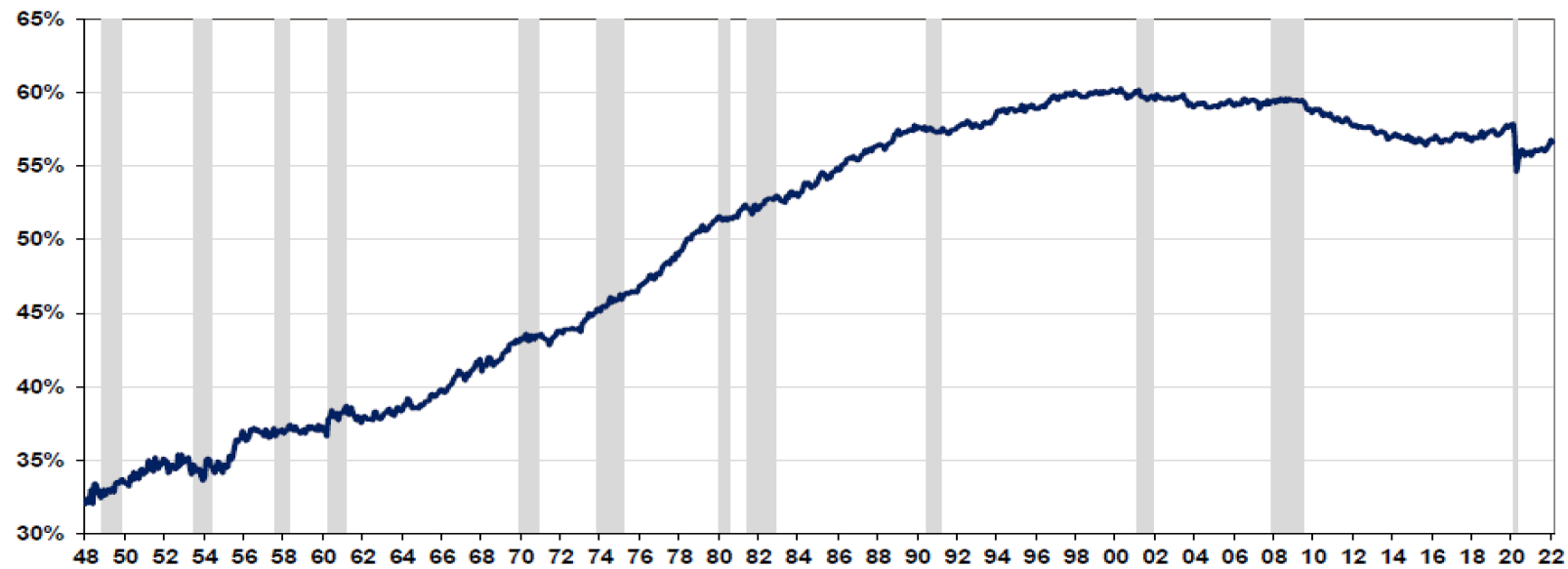




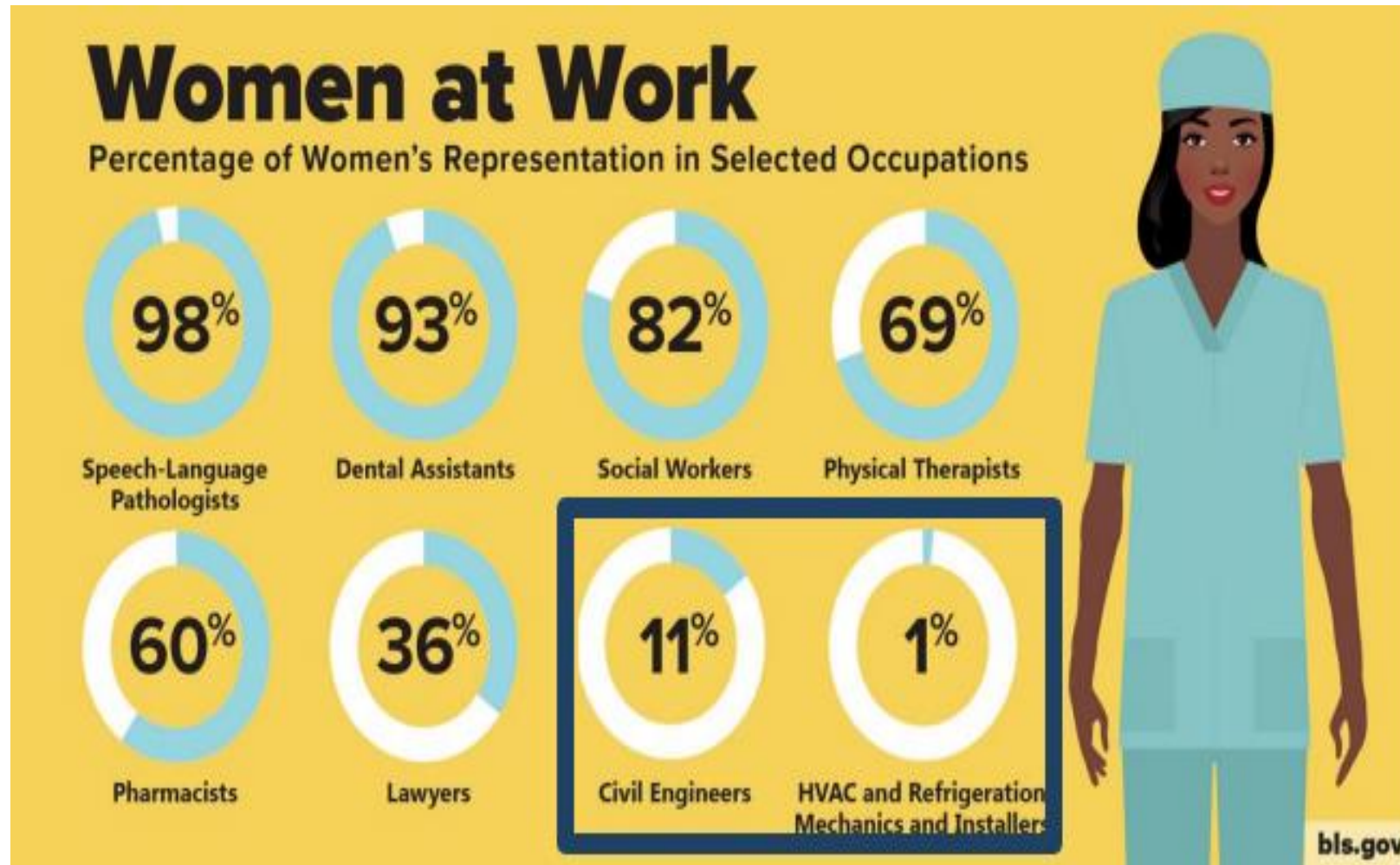
Labor Force Participation Rate -- Men



Labor Force Participation Rate -- Women

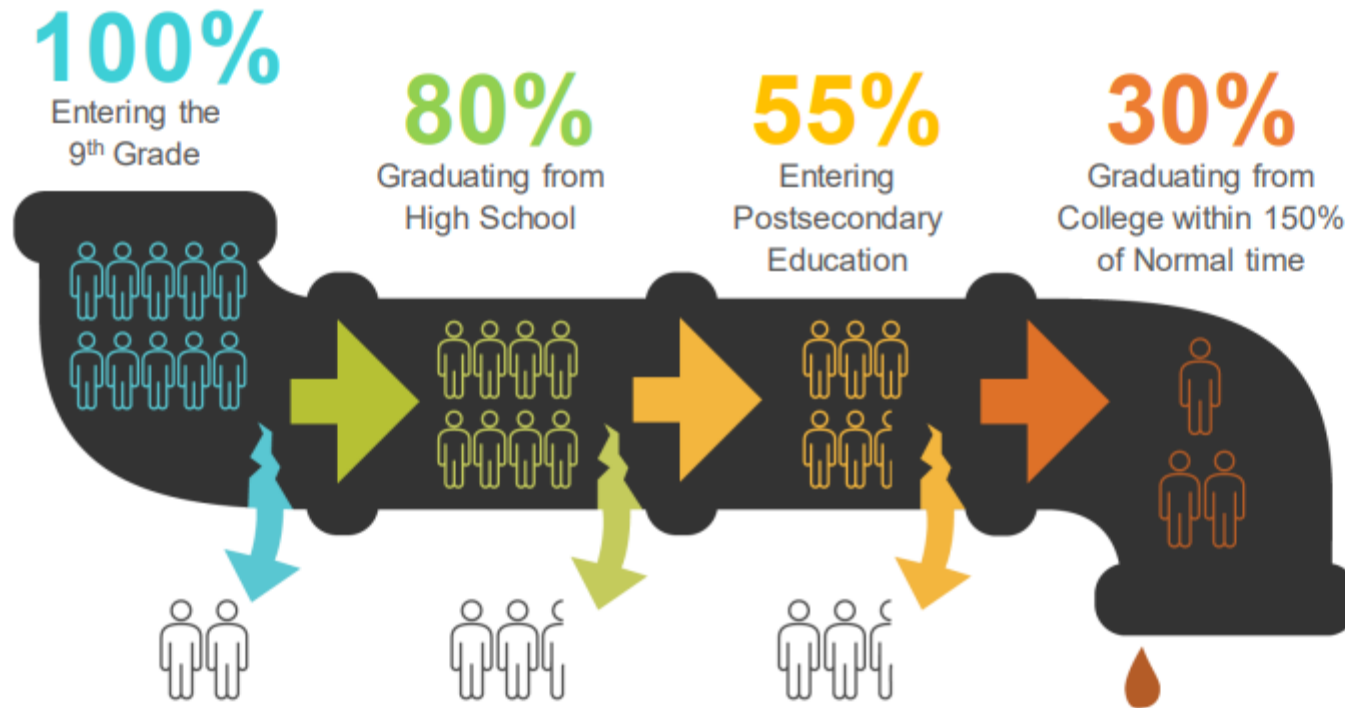


Source: U.S. Bureau of Labor Statistics (BLS).



Are the 70% not graduating from college prepared for the 21st Century Workplace?

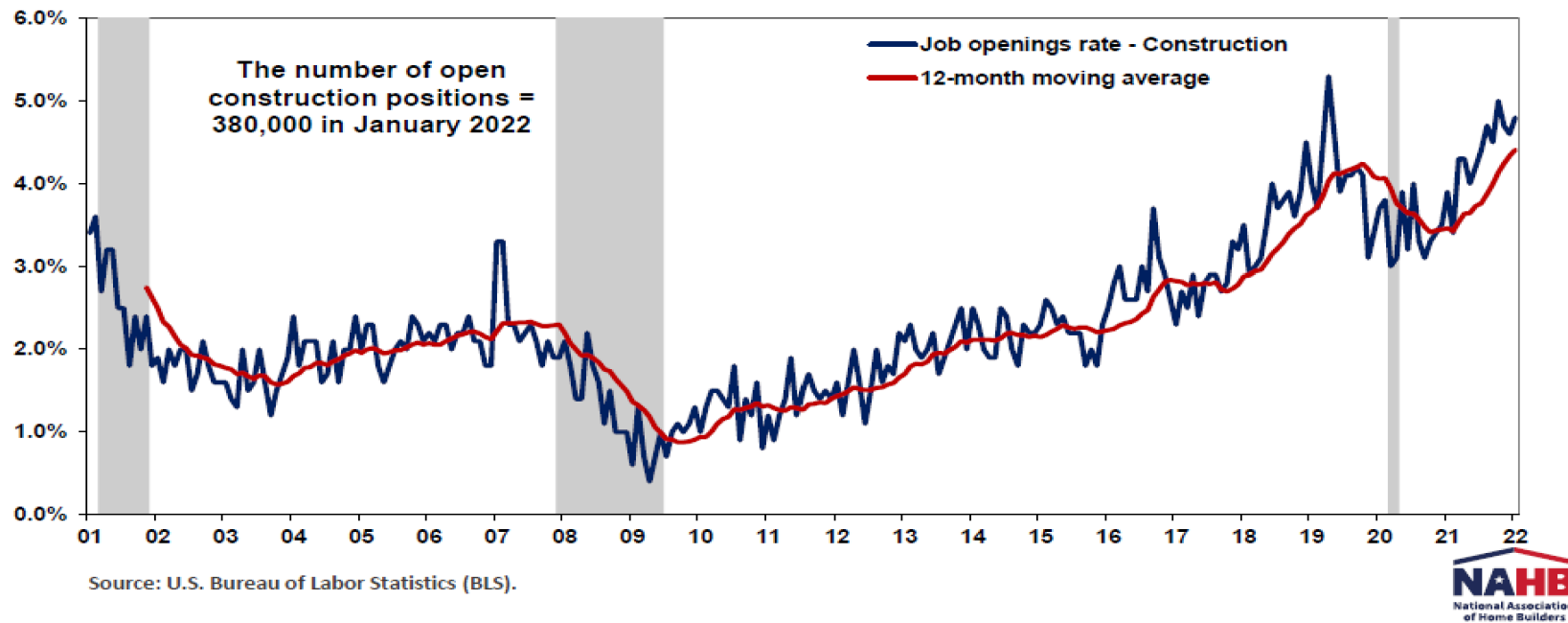
Educational Pipeline



Source: U.S. Department of Education, National Center for Education Statistics. (2017). The Condition of Education 2017 (NCES 2017-144), Public High School Graduation Rates, Retrieved from https://nces.ed.gov/programs/coe/indicator_coi.asp

Labor – Construction Job Openings Surging

Skilled labor shortage persists; 145,300 net gain for residential construction since Jan 2020



Construction Labor Market Projections/Needs



7.6 million workers in construction
3.1 million in residential construction



740,000 occupational openings per year
Based on industry growth and permanent worker exits



Keep in mind: 22% of workforce is self-employed
Immigrant share now 24%

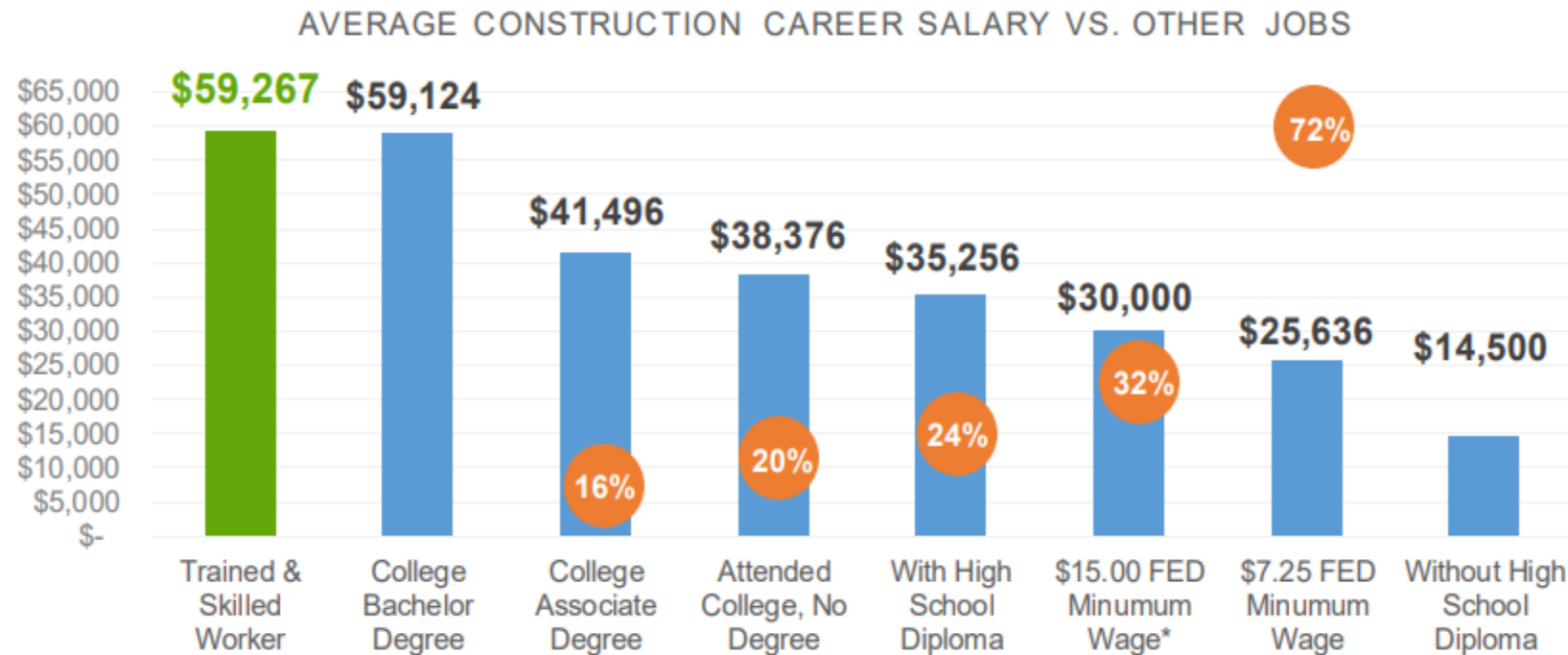


Median age of construction worker is 41



Workers aged 25 to 54 make up 69% of sector in 2019
Down from 72.2% in 2015

— Careers vs. Poverty Prevention —



Source: Construction Industry Resources, LLC, 2018.

*Re-establish the
Nation's Commitment to the
Equal Dignity of All Workers*

**"I believe in the
dignity of labor..."**

- John D. Rockefeller, 1941



Ocean County (NJ)

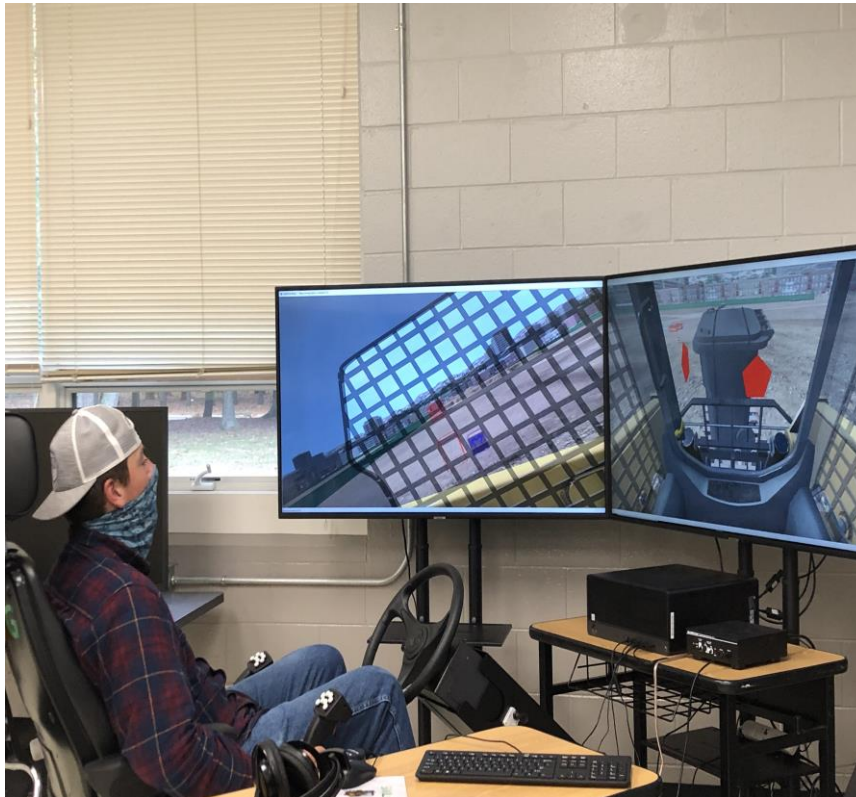
- ▶ Industry partners: Earle, Eosso Brothers Paving, Esposito Construction, Shore Builders Association, Clayton Concrete
- ▶ Middle States Accredited
- ▶ Target secondary, post-secondary, and adult education audiences to serve multiple stakeholders



OCVTS's Simulator Lab



Setups with Tabletop Replica Controls and Operator Chair



Simulator-Based Training (1)

► In Grade 11:

- Gain familiarity of operator controls (pedals, levers, joysticks, etc.) to develop “muscle memory”
- Also 9 weeks of NCCER Core curriculum, and 27 weeks of NCCER HEO Level 1

► In Grade 12:

- Focus on specific task based simulator time
(Also start training on actual equipment, using “special projects” at school/neighbors and HEO Level 2.)

Simulator-Based Training (2)

- ▶ Simulator “sessions” are 45-60 minutes, with 45-60 minutes of instruction
- ▶ Students *self-manage*, using sample target values (“benchmarks”) from Simlog, and “custom” targets developed by the instructor
- ▶ Instructor tracks student progress using Simlog’s “Simulation Manager”
- ▶ Blending of authentic equipment:
 - On-site: OCVTS Equipment and Industry Partner Equipment to complete real-world tasks
 - Off-site: Job Shadowing at industry partner locations
 - Cooperative Education- Student Placements in cooperative education experiences.

In The Field



In the Field



Hands On Instruction from Industry



Program Highlights

- Grades 11 and 12 → 2 year commitment
- Steady growth
 - 2020-21: 31 students
 - 2021-22: 36 students
 - 2022-23: 37 students
- 5 days/week, 2.5 hour blocks- AM/PM Sessions
- Non-traditional applicants include 3 female students for the 2022-23

Outcomes

- ▶ To date, 67 program graduates (not counting 2022-2023)
- ▶ Where are they now?
 - Eosso Brothers
 - Esposito
 - Earle Internship Program

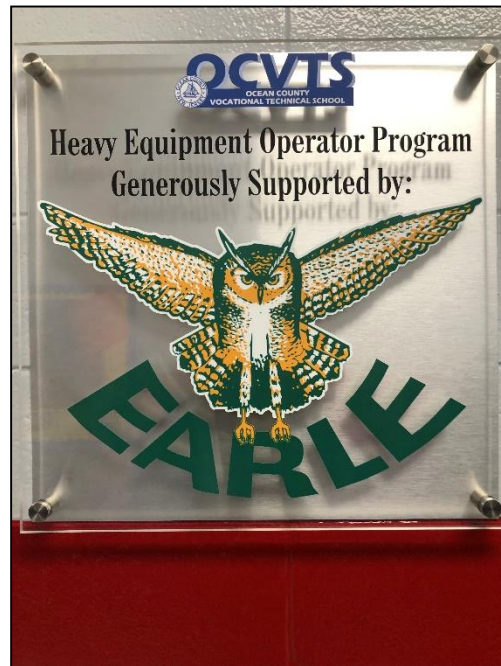


For Adult Education

- ▶ First cohort started in the 2020-2021: 30 adults have successfully completed program
- ▶ Heavy equipment as per the secondary school program taught by an operator from one of our most supportive industry partners
- ▶ Simulator-based preparation is similar to the secondary school program, more in the first portions of NCCER Core and Level 1
- ▶ Industry partners serve speakers and help guide the curriculum and outcomes



Hunterdon Polytech “Inspires” Ocean County Vocational Technical School (also in New Jersey)



(Video Presentation)



Simulator Setups with 8 Tabletop Replica Controls and 2 Operator Chairs in 2020



We continue to EXPAND! 15 Tabletop Replica Controls and 2 Operator Chairs in 2022

- ▶ FORKLIFT
- ▶ BACKHOE LOADER
- ▶ HYDRAULIC EXCAVATOR
- ▶ SKID STEER LOADER
- ▶ BULLDOZER
- ▶ WHEEL LOADER



Ocean County Acquires Equipment & Partners



Passionate Partners are the Difference!

- ▶ The Earle Companies
- ▶ Eosso Brothers Paving
- ▶ Clayton Construction
- ▶ Esposito Construction
- ▶ Shore Builders Association



Partner In-Kind Donations



- Generous gifts from local partners give students exposure to machines they might not otherwise have at their disposal
- Older equipment provides experience with repairs and familiarization to mechanics

