

WISE Pathways

Women in Sustainable Employment

Building awareness of careers in construction, energy, and manufacturing for women.



Construction Industry





What is Construction?

The construction sector comprises establishments engaged in the construction of buildings or engineering projects (e.g. highways and utility systems) and includes new work, additions, alterations, or construction and repairs.

*From the U.S. Census Bureau

Facts About the Construction Industry



- Employment of construction (and extraction occupations) is projected to grow 11 percent from 2016-2026, faster than the average of all occupations, a gain of about 747,600 new jobs.
- Overall growth in the economy and population will increase demand for new buildings, roads, and other structures, which will create new jobs in construction (and extraction) occupations.
- The median annual wage for all construction (and extraction) occupations was \$44,730 in May 2017, which was higher than the median annual wage for all occupations for \$37,690.

*From *The Occupational Outlook Handbook*, <https://www.bls.gov/ooh/construction-and-extraction/home.htm>

Construction Top Five Careers

- Electrician (median salary: \$26.01 hour)
- Carpenter (median salary: \$21.71 hour)
- Welder (median salary: \$19.35 hour)
- Boilermaker (median salary: \$29.93 hour)
- Construction Equipment Operator (median salary: \$22.61 hour)

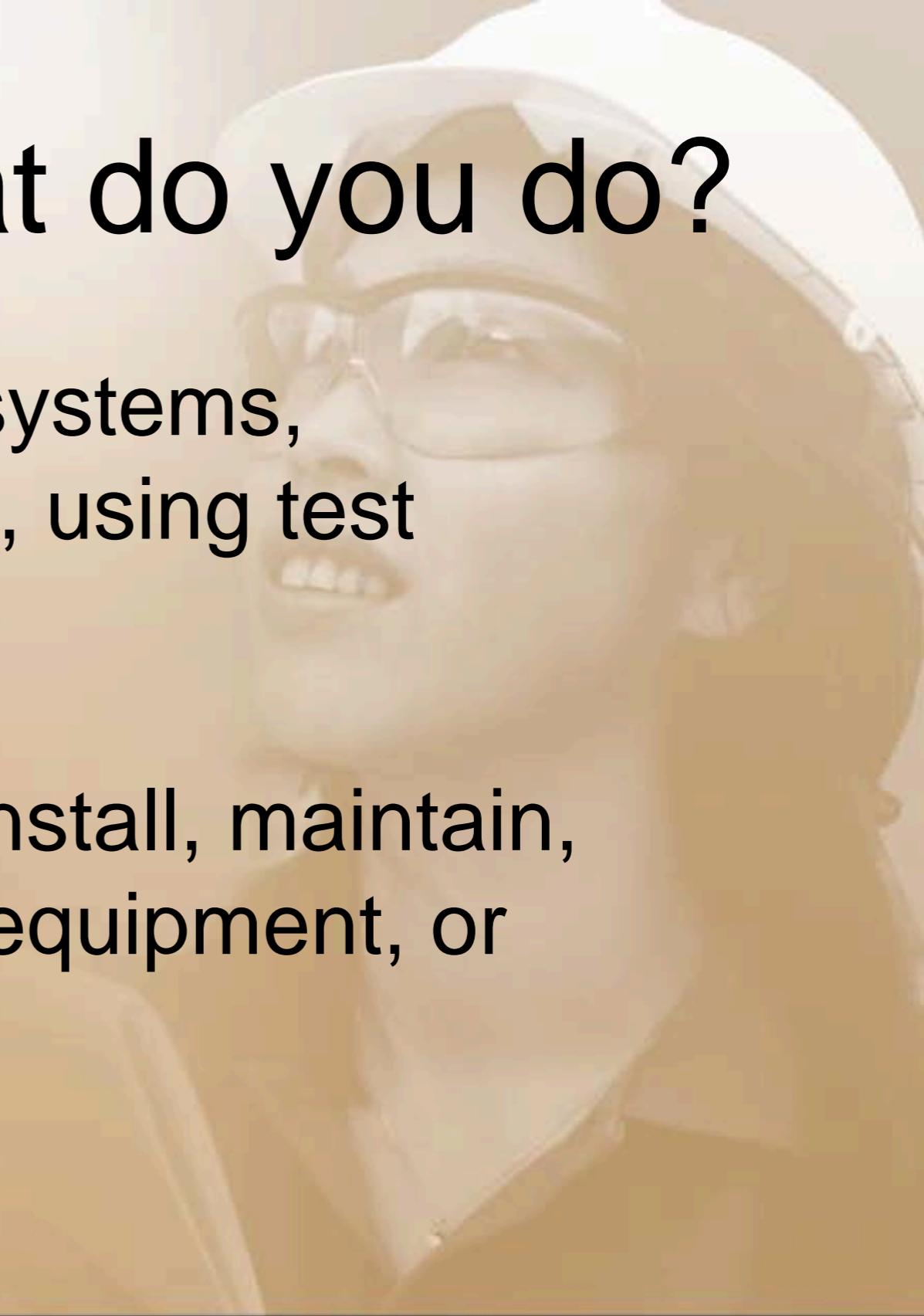
*Source: O*NET 2018

Electrician: What do you do?

- Connect wires to circuit breakers, transformers, or other components
- Repair or replace wiring, equipment
- Test electrical systems
- Plan layout and installation of electrical wiring, equipment, or fixtures
- Inspect electrical systems, equipment, or components to identify hazards, defects, or the need for adjustment or repair, and to ensure compliance with codes

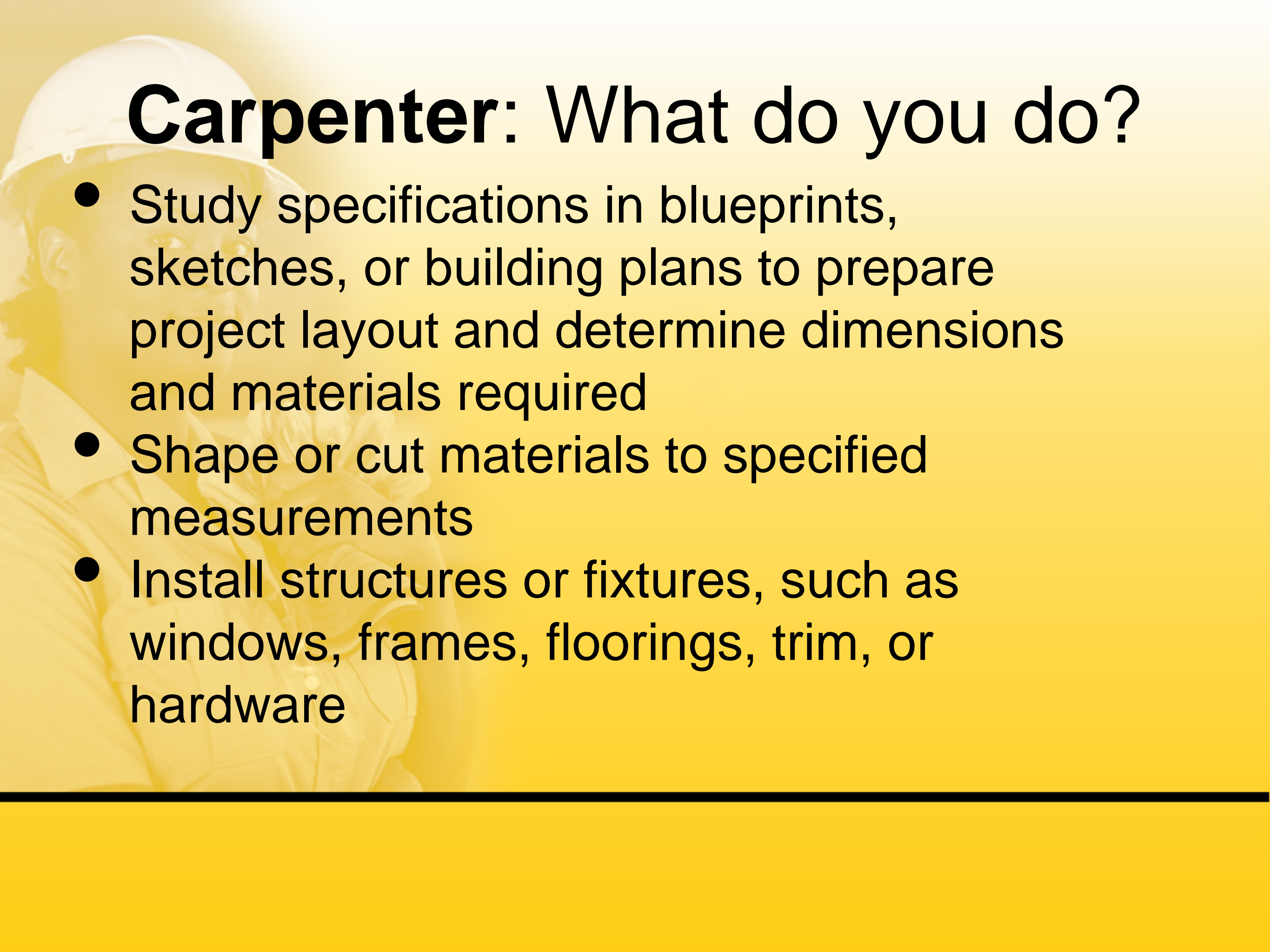
Electrician: What do you do?

- Diagnose malfunctioning systems, apparatus, or components, using test equipment and hand tools
- Direct or train workers to install, maintain, or repair electrical wiring, equipment, or fixtures



Carpenter: What do you do?

- Build or repair cabinets, doors, frameworks, floors, or other wooden fixtures used in buildings
- Remove damaged or defective parts or sections of structures and repair or replace
- Inspect ceiling or floor tile, wall coverings, siding, glass, or woodwork to detect broken or damaged structures



Carpenter: What do you do?

- Study specifications in blueprints, sketches, or building plans to prepare project layout and determine dimensions and materials required
- Shape or cut materials to specified measurements
- Install structures or fixtures, such as windows, frames, floorings, trim, or hardware

Welder: What do you do?

- Weld components in flat, vertical, or overhead positions
- Use various methods to obtain required configurations and positions for welding
- Detect faulty operation of equipment or defective materials and notify supervisors
- Operate manual or semi-automatic welding equipment to fuse metal segments

Welder: What do you do?

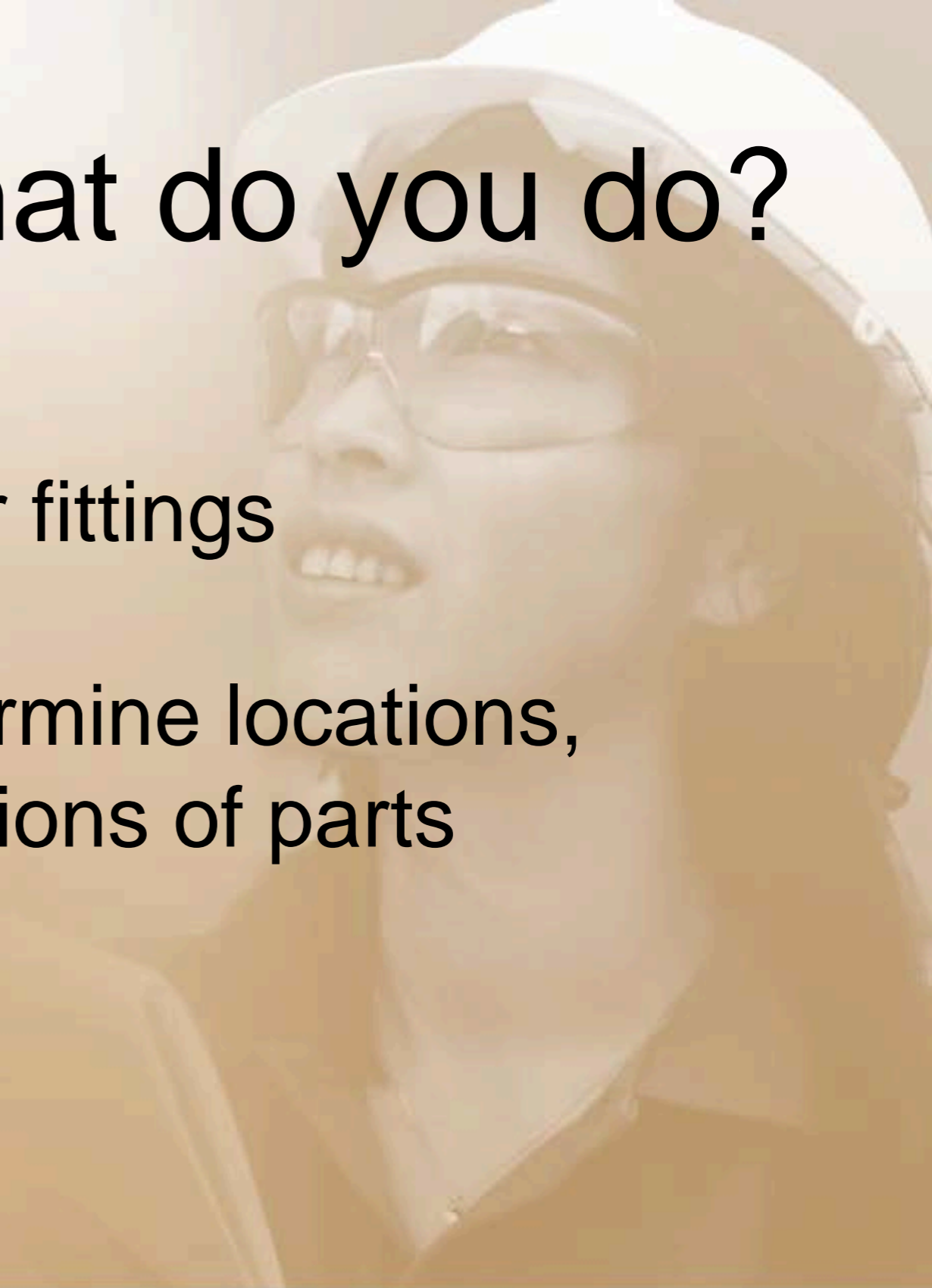
- Monitor the fitting, burning, and welding processes to avoid overheating of parts or warping, shrinking, distortion, or expansion of material
- Examine work pieces for defects to ensure conformance with specifications
- Recognize, set up, and operate hand and power tools
- Lay out, position, align, and secure parts and assemblies prior to assembly

Boilermaker: What do you do?

- Construct, assemble, maintain, and repair stationary steam boilers and boiler house auxiliaries
- Align structures or plate sections to assemble boiler frame tanks or vats, following blueprints
- Assist in testing assembled vessels
- Direct cleaning of boilers and boiler furnaces

Boilermaker: What do you do?

- Inspect and repair boiler fittings
- Study blueprints to determine locations, relationships, or dimensions of parts



Construction Equipment Operator: What do you do?

- Adjust handwheels and depress pedals to control attachments
- Start engines, move throttles, switches, or levers, or depress pedals to operate machines
- Locate underground services
- Load and move dirt, rocks, equipment, or other materials



Construction Equipment Operator: What do you do?

- Drive and maneuver equipment equipped with blades in successive passes over working areas to remove topsoil, vegetation, or rocks or to distribute and level earth or terrain
- Coordinate machine actions with other activities, positioning or moving loads in response to hand or audio signals from crew members

Construction Industry Education/Credential Requirements

- Required: High school diploma or GED
- Desirable: National Career Readiness Certificate (NCRC)
- Electrician: apprenticeship; post-secondary certificate
- Carpenter: apprenticeship
- Welder: post-secondary certificate desirable
- Boilermaker: apprenticeship
- Construction Equipment Operator: the job training

Video

Sisters in the Brotherhood: A Film About Women Carpenters

<https://www.youtube.com/watch?v=LG1Jxxwrzn4&feature=youtu.be>



Resources

Apprenticeships

International Brotherhood of Electrical Workers: <http://ibew.org/>

United Brotherhood of Carpenters: <https://www.carpenters.org/>

Boilermakers National Apprenticeship Program: <https://www.bnap.com/>

Certifications

National Center on Construction Education & Research:
<https://www.nccer.org/>

American Welding Society: <https://www.aws.org/certification/>

Certain types of construction equipment operators have certifications, like the Crane Operators

What is the NCRC?

The ACT WorkKeys National Career Readiness Certificate (ACT WorkKeys NCRC®) is an assessment-based credential issued at four levels; Platinum, Gold, Silver, and Bronze. The NCRC measures and certifies the essential work skills needed for success in jobs across industries and occupations. With an NCRC, you can:

- Build confidence that your skills meet the needs of employer
- Show prospective employers concrete proof of the skills you
- Apply real-world use to coursework from the classroom
- Determine skill improvement and training needs
- Improve the opportunities for career changes and advancement
- Earn college credit at many institutions and reach academic goals more quickly



NCRC: Qualifying for the Credential

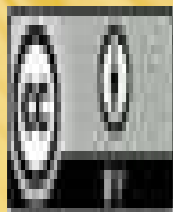
- A multi-level credential
- Requires scores of Level 3 or higher on three assessments:

Applied Math, Workplace Documents, Graphic Literacy

- Bronze: Level 3 or higher on each assessment
- Silver: Level 4 or higher
- Gold: Level 5 or higher
- Platinum: Level 6 or higher

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