BUILDINGENERGY BOSTON

Three Routes to Work: Recruiting, Retaining and Upskilling Our Workforce

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Brendan Ryan, Forge
Andy Winslow, NEEP

Curated by Asher Greenberg

Northeast Sustainable Energy Association (NESEA) | March 21, 2025

What to Expect

Roughly half presentation and half Q&A/Discussion

All questions at the end

Learning Objectives:

1. Describe, compare and contrast three distinct workforce development approaches
2. Identify barriers to access and equitable implementation in workforce development programming
3. Identify metrics for workforce development success
4. Recognize opportunities and best practices to advance your own workforce development goals

Very Important Note… KAZOOS

Purpose: to keep people awake and engaged

When to use: Kazoo when prompted, when you like what the presenter is saying, and in addition to or in lieu of applause

How to use: really? hum into it!

Let’s warm up these kazoos…

About Northeast Energy Efficiency Partnerships

- Non-partisan, non-profit organization founded in 1996
- One of six Regional Energy Efficiency Organizations
- We drive market transformation regionally by fostering collaboration and innovation, developing research and tools, and disseminating knowledge

FORGE

We install and service heat pumps.

Our mission: to build and power the next-generation trades worker.

Awarded $500,000 Workforce Training Grant from Commonwealth of MA in 2024.

ReMaine Clean Energy Internship Program

Chase Macpherson
Manager of Community Solutions
Northeast Energy Efficiency Partnerships (NEEP)

ReMaine Clean Energy Internship Program

- Goal: Provide entry point to clean energy industry in the state of Maine
- Funded by Maine Governor's Energy Office, part of Clean Energy Partnerships
- Began October 2022

Kazoo Questions…

- Who here has ever had an internship?

Kazoo Questions…

- Who here has ever had an internship?
- Who has had an *unpaid* internship?

Kazoo Questions…

- Who here has ever had an internship?
- Who has had an *unpaid* internship?
- Who has hosted an intern?

ReMaine Program Overview

Interns work 240-320 hours each in clean energy roles, making $18-24 per hour

- Recruit and place interns with clean energy employers
  - Emphasis on BIPOC and women interns
- Broad definition of clean energy job

Subsidized wages for employers 50% up to $24/hour

Project Partners

Program Offerings

For Employers

Intern Candidate Recruiting

Payroll, HR, and Insurance

30% employment burden shared in addition to wages

Rolling Start Dates

Program Offerings

For Employers

- Intern Candidate Recruiting
- Payroll, HR, and Insurance
  30% employment burden shared in addition to wages
- Rolling Start Dates

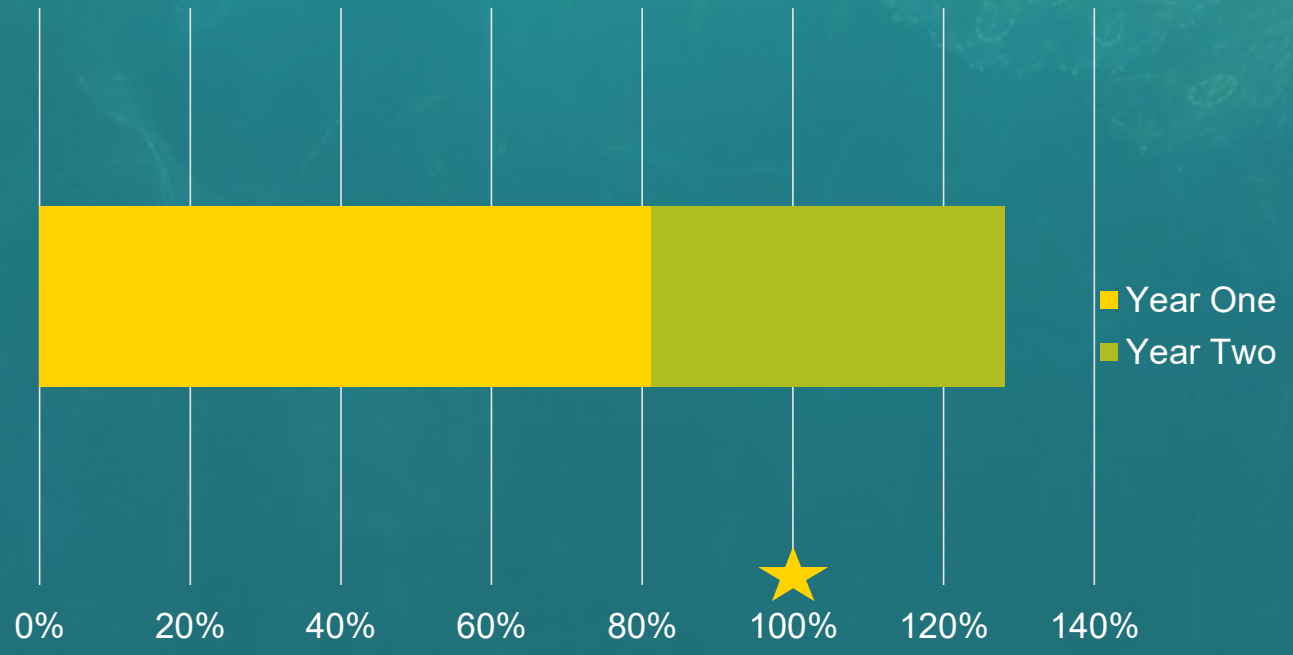
For Interns

- Orientation and Soft Skills Training
- Wrap-around services available (transportation stipends, resume support, interview prep)
- Full-Time or Part-Time Schedule

Success in Years One & Two

Goal in year one: place 32 interns

Total placements after year two: 41 interns



We Filled a Wide Variety of Roles Through ReMaine

- Weatherization technician
- Heat pump installation
- Accounting/administration
- Building energy code enforcement
- Research and communications
- Mechanical engineering
- Community solar sales
- Clean energy policy

Intern Retention and Conversion

Overall conversion rate to full time: 40% (for those who completed 240 hours)*

*not all roles or interns were open to full-time conversion

Wages & Demographics Exceeded Expectations

- Average Wage: ~$20/hour
- Demographics Goal: 40% women and 30% BIPOC interns

Results…

50% women

40% BIPOC

Interns Loved the Program

"gives me a leg up

opportunity to dive into a previously unfamiliar sector

able to learn more about electrification programs

opportunity to work for a sustainability focused nonprofit

I liked how dynamic the role was that I was in, and the access I gained to the industry"

Employers Love the Program As Well

Jeff Marks, ClimateWork Maine:

"As a new organization … the **ReMaine program was critical to our projects and programs**. The intern settled in quickly and performed exceptionally…The E2Tech, JPI, and NEEP team really delivered."

Year 3 (October 2024 – September 2025)

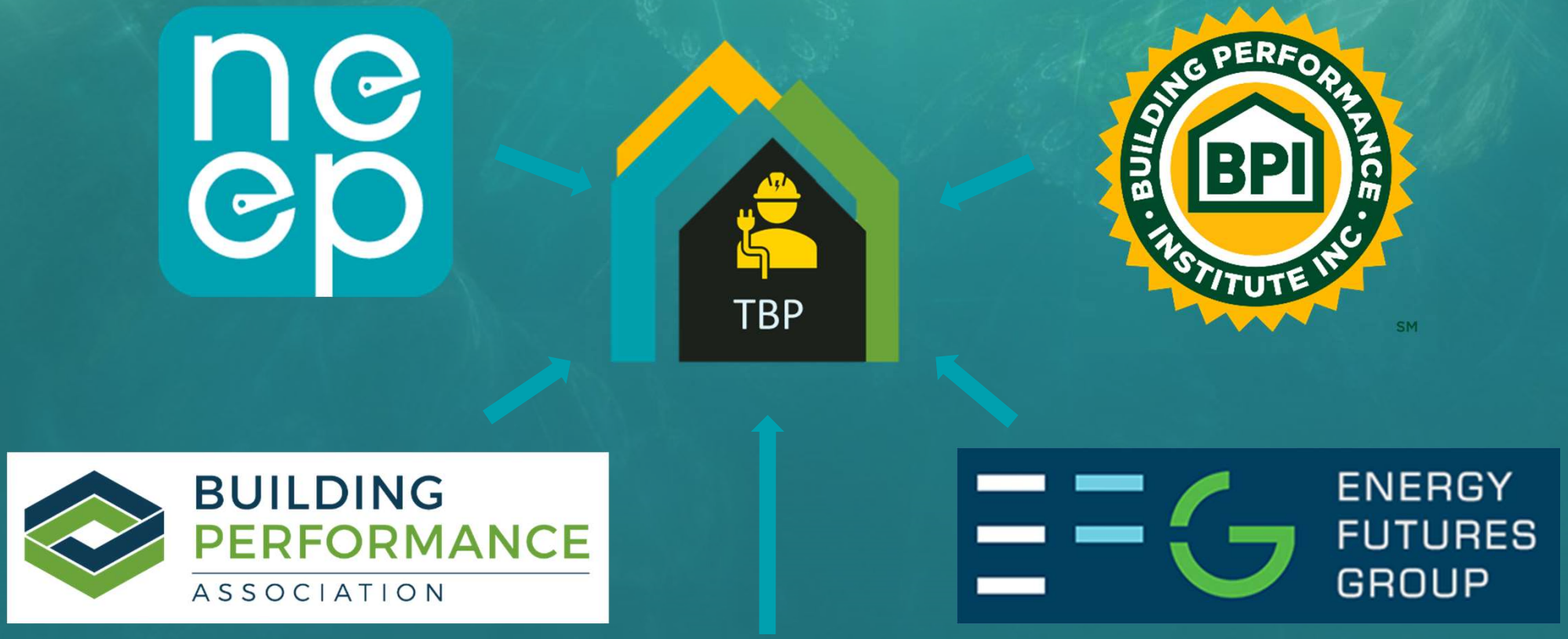
- Place 20 more interns
- Increased pay range – subsidize up to $24/hour (previously up to $22)
- Increased max number of subsidized hours – now up to 320 hours
- Using job board for more self-matching
- Finding long-term home for program model

Total Building Performance (TBP) Certificate

March 21, 2025

Andy Winslow
Manager
Community Solutions
Northeast Energy Efficiency Partnerships

Introducing the Total Building Performance Certificate!



With Funding and Support from the Department of Energy!

Total Building Performance (TBP) Quick Facts

- Release Date: May 1, 2024
- Cost: $250
- Format: Virtual, un-proctored
- Pre-Req: BPI Building Science Principles (BSP) Certificate
- Training Materials: **FREE** and online
- Training Material Review Time: 5-15 hours
- Continuing Education Credits: 10

Why Was Total Building Performance (TBP) Created?

Because Whole-Home Retrofits Are Effective!

Estimated Results from 30 homes completed in the Zero Energy Now Pilot

Average Annual Energy Cost Savings - Pre vs Post	74%
Average Annual Energy Cost Reduction	$3,247
Average Energy Savings - Fossil Fuels and Electric Grid (MMBtus)	92%

NOTE: Calculations based on energy modeling of the homes

Why Was Total Building Performance (TBP) Created?

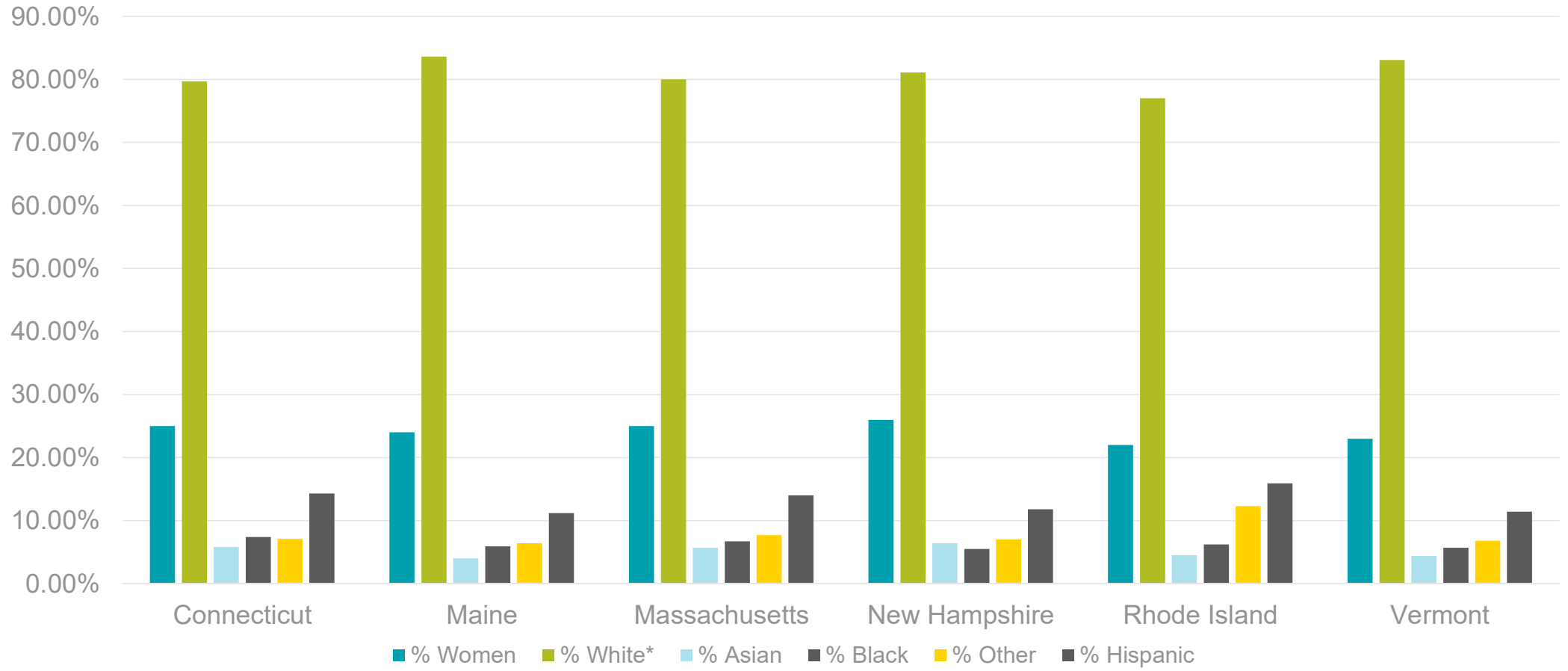
Growing demand for electrified and low carbon homes, however:

It is a confusing Process

It isn't cheap

The Workforce Barrier

Energy Efficiency Workforce Demographics



Eight Knowledge Areas

Designing a Building Decarbonization Project

Financial Analysis

Communication to Clients

Energy Modeling, Load Calculations and Measure Analysis

Building Science and Whole Building Concepts

GHG Impacts

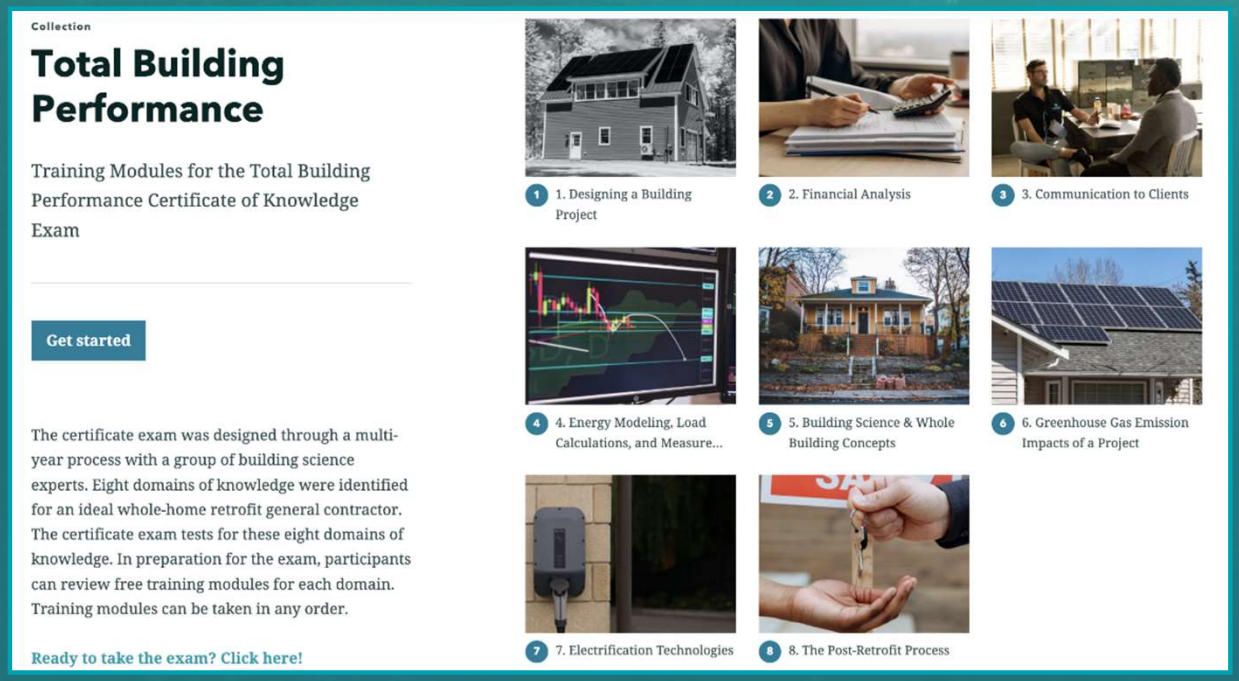
Electrification / Decarbonization Technologies

The Post Retrofit Process

What Is Total Building Performance (TBP)?

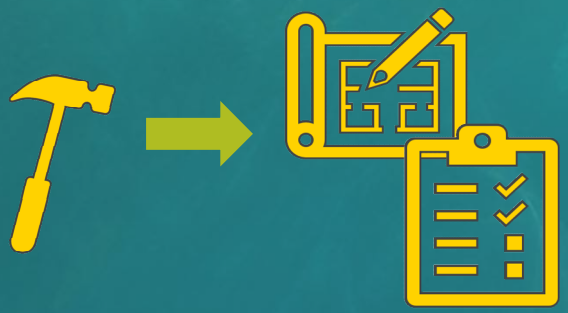
8 Training Modules

1 Exam



TEP Workforce Online Resource Center | Northeast Energy Efficiency Partnerships (neep.org)

What Does Total Building Performance (TBP) offer Certificate Holders?



Bigger Projects

Be On the Cutting Edge

Set you/your business apart

Satisfied Customers

Lots of Potential Use Cases

- Contractor looking to broaden their knowledge
- Young contractors looking to start a business and set themselves a part
- Program Admins who want to better understand their programs
- Project Managers/admins who want to better understand their customers and colleagues
- Community Coaches and volunteers
- And more!

Take Advantage of Total Building Performance (TBP)!

Offer TBP Course

- Ready-to-Use Modules
- Great for upskilling programs or getting new people into the clean energy space
- Give contractors a competitive edge

Use TBP as a Standard

- TBP certification could be required for job placement
- Guarantee baseline knowledge for clean energy retrofits

Training in the private sector

Expanding the clean energy workforce: Where's the bottleneck?

Funding

Training

Employment

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Forge
Training
Model

Forge has graduated and employed more than 100 apprentices over the past three years.

Everything about our program looks different now than it did in March, 2022.

25%

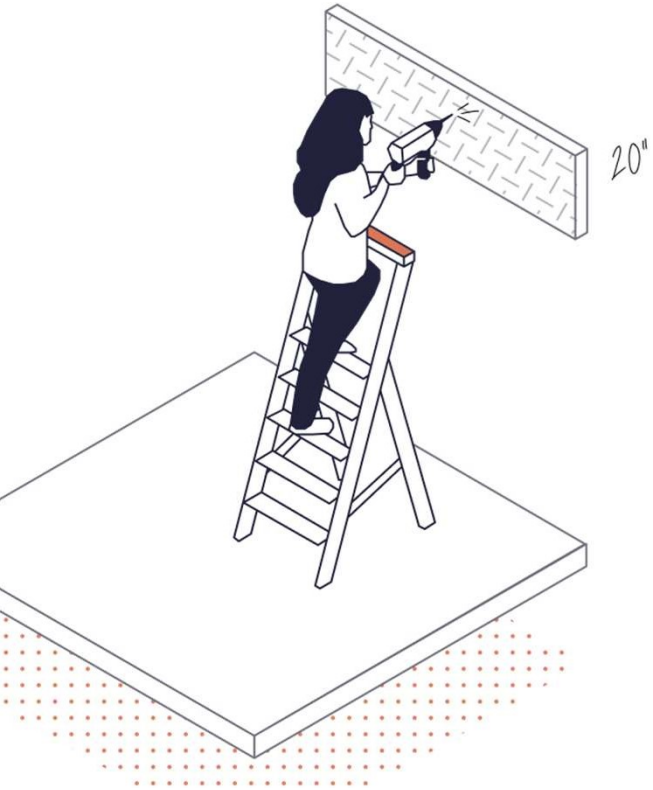
of program graduates are women

68%

graduation rate

78%

of hired apprentices had no prior trades experience



What we've learned

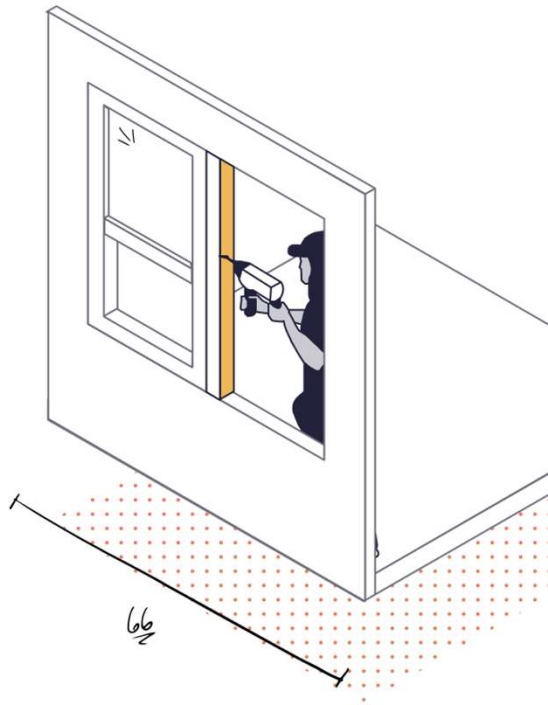
- No hacks, short cuts, disruptions, or magic beans.
- Standardized and transparent standards increase diversity, improve employee experience, and allow for faster growth.
- Everyone has to be bought in to the vision.

The trades are careers

And like in any career, there are stages and progressions

- Interest and exploration
- Training and foundational skills
- Growth, development, adaptation
- Leadership and Training
- Mastery

No one program covers them all. And no one skips steps.



Interview Skills Assessment: Birdhouse Building

Forge Training Progression

Candidate
Prerequisites + Tier 1 Training

PREREQUISITES

- Skill verification, expectation setting.
- Establish basic mechanical aptitude and commitment to the trade prior to training investment.

TIER 1 TRAINING

- Skill verification, expectation setting.

0 Jobs Completed

Apprentice
Build Tier 1 Competency

ON-THE-JOB TECHNICAL DEVELOPMENT

- Build technical skills to perform basic equipment installation and jobsite labor.
- Prove in field work ethic and aptitude.

20 Jobs Completed

Junior Crew Member
Build Tier 2 & 3 Competency

MODULARIZED TRAINING: MULTIPLE 1-DAY MODULES

- Build technical skill and knowledge to independently perform job tasks in standard scenarios and troubleshoot expected issues

SAMPLE 1-DAY MODULE

- Duct work
- Metal fabrication
- System pressure test
- Adding refrigerant

50 Jobs Completed

Junior Crew Lead
Build Experience

ON-THE-JOB PROBLEM SOLVING

- Remote assistance + build problem solving experience to handle both expected and unexpected issues

Build Experience

Training

A clear, consistent rubric

N/A	-Not Observed
1	***Assistant*** Can perform this task correctly, and meet quality standards in the **most basic scenarios**, but is **not yet efficient.** Acts as a helper, providing assistance to more experienced crew members.
2	***Efficient*** Efficient and **partially independent** with **basic scenarios and issues**. Can follow the given plan, but gets stuck and may **need support** when the task **deviates** from the given plan.
3	***Efficient and Partially Independent*** Efficient and **fully** independent with **basic scenarios** and issues. Efficient and **partially** independent with **complex scenarios** and issues.
4	***Highly Efficient and Fully Independent*** Highly efficient and **fully** independent with **basic and complex** scenarios and issues.
5	***Technical Leader*** Highly efficient and **fully** independent with **basic and complex** scenarios and issues **Supports the wider team** with technical decision-making in **unique, rare,** and unclear scenarios.

A clear, consistent skills matrix

Skills Matrix: Technical Skills										
Pay Range										
	Apprentice 1	Apprentice 2	Junior 1	Junior 2	Journey 1			Journey 2		Supervisor 1
Task			Ducted	Ducted	Ductless	Ducted	Ducted CL	Ducted	Ducted CL	Ducted CL
Equipment Install (refrigeration circuit)										
Install heads	2	3	3	3	4	4	4	4	4	5
Install line set ducting	2	3	3	3	4	4	4	4	4	5
Install line sets	2	3	3	3	4	4	4	4	4	5
Install drains	2	3	3	3	4	4	4	4	4	5
Install condenser	2	3	3	3	4	4	4	4	4	5
Install branch boxes					3	3	3	4	4	5
Duct Work (air flow control)										
Ancillary duct work	-	-	3	3	-	4	4	4	4	5
Install ducting	-	-	3	3	-	4	4	4	4	5
Install air handler	-	-		3	-	4	4	4	4	5
Install boots & grilles	-	-		3	-	4	4	4	4	5
Metal fabrication	-	-			-	3	3	4	4	5
System Startup & Condenser Work										
Purge, pressurize and vacuum system				3	4	4	4	4	4	5
Add refrigerant				3	4	4	4	4	4	5
Install and set up controls				3	4	4	4	4	4	5
Explain system operation to customer				3	4	4	4	4	4	5
Recover refrigerant					3	3	3	4	4	5
Leadership										
Communication		2	3	3	3	3	4	3	4	5
Workflow Management		2	3	3	3	3	4	3	4	5
Learning & Teaching		2	3	3	3	3	3	3	4	5
Quality Control		2	3	3	3	3	4	3	4	5

Expanding the clean energy workforce: Where's the bottleneck?

Funding

Training

Employment

Thank you!

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