

# Building Technology Integration (BTI)

## How Green is Changing Building Technology Integration Jobs

Every job in building technology integration is a green job. The “green” movement is the motivator behind building technology integration. As the Smart Grid is implemented in communities across the nation, the need for trained building technology integration specialists will increase dramatically. These “green collar” workers will need to be trained in the emerging technology of “smart” buildings, Smart Grid, energy-efficient and high-security structures. The newly-trained technicians will be in high demand as the nation continues its transformation toward sustainable, energy-efficient, environmentally-responsible buildings.

There is a constant and growing demand from industry for both newly trained workers as well as continuing the education of experienced workers. With “smart” energy, systems and buildings at the core of the new energy economy your school has a tremendous opportunity to be preparing individuals with the skills for the jobs of the 21st century.

## The Future of Building Technology Integration Employment

### Building Technology Integration Employment Projections

Green building technology integration involves the installation, integration, and troubleshooting of automated “smart” subsystems including home security, audio/video, computer networks, electrical and structure wiring, heating, ventilation, and air conditioning (HVAC), cable, satellite, broadband, and telecommunications.

Demand for electricians and electronic technicians who can implement smart systems is projected to grow dramatically as a result of tax incentives and government stimulus programs that specifically mandate renewable energy solutions.

OCCUPATIONAL TITLE	EMPLOYMENT, 2008	PROJECTED EMPLOYMENT, 2018	CHANGE, 2008-18	
			NUMBER	PERCENT
Electrical and electronics installers and repairers	160,900	168,400	7,500	5
Electrical and electronics repairers, commercial and industrial equipment	78,000	81,000	2,900	4
Electrical and electronics repairers, powerhouse, substation, and relay	23,400	26,100	2,700	12
Electronic home entertainment equipment installers and repairers	51,200	56,800	5,500	11

Source: U.S. Bureau of Labor Statistics, 2010: <http://www.bls.gov/oco/ocos187.htm>

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# Building Technology Integration *cont.*

## Employment and Education Changes for Building Technology Integration (BTI)

There will be great employment opportunities for electricians, electronics technicians, and HVAC workers who specialize in building technology integration as they are directly connected with the construction and maintenance of the new Smart Grid within residential, commercial, and industrial buildings. Jobs are opening up all across the United States and the demand for highly skilled workers is rapidly growing.

The building technology integration workers of the future need to possess the technical background and practical skills necessary for careers in the installation, maintenance, support, and troubleshooting of electronics, telecommunications, security & fire alarm systems, HVAC systems, entertainment equipment and computer technology-based systems and equipment as it relates to the Smart Grid and Smart Buildings.

U.S. Department of Labor suggests by 2016 virtually all individuals in the electrical and electronics trades will need to be “green-trained”. The economy and new environmental energy regulations are creating green jobs in building technology integration within three major areas: energy efficiency, renewable energy, and smart energy.

### Energy Efficiency:

“Smart” subsystems can result in significant savings in heating and air conditioning costs, as well as the operation of utilities. It is also possible to integrate in energy generating systems (solar energy panels) to allow for selling energy back into the grid.

### Renewable Energy:

Solar panels and geothermal heat pumps, as well as small wind turbines can be integrated into the smart systems.

### Environmental Quality:

Green Building Technology Integrators can play a key role in eliminating emissions, reducing waste, and monitoring air and water quality.

## Education – Connecting your Curriculum to the 21st Century

### What does this all mean for the education of BTI workers?

The core requirements for electricians, electronics technicians and HVAC workers will still consist of completion of an apprentice program, an associate degree, or a certificate program.

### Emerging programs for jobs in BTI include:

- Electronic Systems Technician
- Electronic Systems Designer
- Electronic Systems Project Management
- Electronic Systems Business
- Electronic Systems Customer Relations

### Essential Green Building Technology Courses & Competencies

- Access Control Systems
- Electronic Fundamentals
- Electrical Wiring and Devices
- Low Voltage Services
- Wireless Networking Basics
- Remote Connectivity
- Residential Audio, Visual Systems
- Automating, Integrating Residential Systems
- Structured Cabling
- Wireless LAN, WLAN Standards
- MS-Windows, Network Operating Systems
- Human Relations
- Communications
- Security and Fire Alarm Systems
- Waste Management
- Materials Management (toxic waste, etc.)
- Low-Water Usage/Plumbing
- Metering
- Smart Meter Data Integration
- Smart Grid Devices

### Additional Resources, Certificates and Certification

- The CEA-CompTIA Digital Home Technology Integrator (DHTI+) certification identifies knowledgeable and skilled digital home technology professionals. It is an international, vendor-neutral certification that tests a technician’s ability to configure, integrate, maintain, troubleshoot, and comprehend the basic design concepts of electronic and digital home systems. It is recommended that CEA-CompTIA DHTI+ candidates have 18-24 months experience in some area of home integration technology: [www.comptia.org](http://www.comptia.org)
- Several companies that provide digital home solutions value and support CEA-CompTIA DHTI+. They include Best Buy, Panasonic and Honeywell International.
- CEDIA Installer Level 1: [www.cedia.net](http://www.cedia.net)

### CEDIA offers a wide variety of certification exams:

- ESPA Certified-EST
- Electronic Systems Technician II
- Electronic Systems Technician III (Advanced EST)
- Electronic Systems Designer
- Home Theater Design Specialist

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