



# Architecture and Construction Career Cluster

The Architecture and Construction career cluster focuses on designing, planning, managing, building, and maintaining the built environment. This career cluster includes occupations ranging from architect, carpenter, and construction manager to electrician, plumber and heating, air conditioning, and refrigeration technician.

## Statewide Program of Study: Architectural Drafting and Design

The Architectural Drafting and Design program of study focuses on occupational and educational opportunities associated with developing, engineering, and designing building structures and facilities. This program of study includes reading, interpreting, and drawing blueprints for interior and exterior construction projects.



## Secondary Courses for High School Credit

<b>Level 1</b>	<ul style="list-style-type: none"> <li>Principles of Architecture</li> <li>Principles of Construction</li> </ul>
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Architectural Design I</li> <li>Interior Design I</li> </ul>
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Architectural Design II</li> <li>Interior Design II</li> </ul>
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Practicum in Architectural Design</li> <li>Practicum in Interior Design</li> <li>Career Preparation for Programs of Study</li> </ul>

## Aligned Advanced Academic Courses

### Dual Credit

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

## Work-Based Learning and Expanded Learning Opportunities

### Work-Based Learning Activities

- Intern at an architectural firm to develop CADD drafting and design technology skills
- Shadow a civil engineer to learn more about their day-to-day responsibilities

### Expanded Learning Opportunities

- Conduct an informational interview with an architect to learn about their role and responsibilities
- Participate in SkillsUSA or TSA

## Aligned Industry-Based Certifications

- Autodesk Associate (Certified User) Revit Architecture



## Example Postsecondary Opportunities

### Associate Degrees

- CAD/CADD Drafting and/or Design Technology
- Drafting and Design Technology
- Surveying Technology/Surveying
- Architectural Drafting and Architectural CAD/CADD



### Bachelor's Degrees

- Civil Engineering
- Construction Engineering
- Surveying Engineering
- Drafting and Design Technology

### Master's, Doctoral, and Professional Degrees

- Civil Engineering
- Geographic Information Science and Cartography
- Construction Engineering Technology



## Example Aligned Occupations

### Architectural and Civil Drafters

Median Wage: \$57,424  
Annual Openings: 1,366  
10-Year Growth: 15%

### Architects

Median Wage: \$80,903  
Annual Openings: 966  
10-Year Growth: 18%

### Construction Managers

Median Wage: \$95,072  
Annual Openings: 6,325  
10-Year Growth: 24%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024

For more information visit:



<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



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## Statewide Program of Study: Carpentry

The Carpentry program of study focuses on occupational and educational opportunities related to constructing, installing, and repairing structures and fixtures made of wood (including frameworks, partitions, joists, studding, rafters, and stairways). The program of study includes installing, dismantling, or moving machinery and heavy equipment according to layout plans, blueprints, or other drawings.



## Secondary Courses for High School Credit

- |                |  |
|----------------|--|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>Principles of Construction</li> <li>Principles of Architecture</li> </ul>                         |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>Construction Technology I</li> </ul>  |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>Construction Technology II</li> </ul>   |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>Practicum in Construction Technology</li> <li>Career Preparation for Programs of Study</li> </ul> |

### Aligned Advanced Academic Courses

<b>Dual Credit</b>	Dual credit offerings will vary by local education agency.
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### Work-Based Learning and Expanded Learning Opportunities

#### Work-Based Learning Activities

- Intern with a carpenter to practice skills such as measuring materials and assembling structures
- Participate in a pre-apprenticeship that includes activities like installing cabinets, drywall, and siding

#### Expanded Learning Opportunities

- Shadow a construction manager to learn more about how construction teams work together to complete projects
- Participate in SkillsUSA

### Aligned Industry-Based Certifications

- HBI Pre-Apprenticeship Certificate Training (PACT), Basic Carpentry
- HBI Pre-Apprenticeship Certificate Training (PACT), Core
- HBI Pre-Apprenticeship Certificate Training (PACT), Green Core
- NCCER Carpentry Level I
- NCCER Carpentry Level II
- NCCER Commercial Carpenter
- NCCER Construction Technology Certification Level I
- NCCER Core



## Example Postsecondary Opportunities

### Apprenticeships

- Carpenter

### Associate Degrees

- Construction Management
- Construction Engineering Technology
- Building Construction Technology

### Bachelor's Degrees

- Construction Engineering
- Construction Science
- Construction Site Management

### Master's, Doctoral, and Professional Degrees

- Construction Engineering Technology
- Construction Engineering
- Construction Management
- Project Management



## Example Aligned Occupations

### Drywall and Ceiling Tile

#### Installers

Median Wage: \$44,699  
Annual Openings: 758  
10-Year Growth: 14%

### Carpenters

Median Wage: \$46,272  
Annual Openings: 5,623  
10-Year Growth: 15%

### Construction Managers

Median Wage: \$95,072  
Annual Openings: 6,325  
10-Year Growth: 24%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



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## Statewide Program of Study: *Electrical*

The Electrical program of study focuses on occupational and educational opportunities associated with installing, maintaining, and repairing electrical wiring, equipment, and fixtures. The program of study also addresses installing and repairing telecommunications cable including fiber optics.



## Secondary Courses for High School Credit

- |         |  |
|---------|--|
| Level 1 | <ul style="list-style-type: none"> <li>Principles of Architecture</li> <li>Principles of Construction</li> </ul>                         |
| Level 2 | <ul style="list-style-type: none"> <li>Electrical Technology I</li> </ul>  |
| Level 3 | <ul style="list-style-type: none"> <li>Electrical Technology II</li> </ul>   |
| Level 4 | <ul style="list-style-type: none"> <li>Practicum in Construction Technology</li> <li>Career Preparation for Programs of Study</li> </ul> |

## Aligned Advanced Academic Courses

**Dual Credit** Dual credit offerings will vary by local education agency.

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## Work-Based Learning and Expanded Learning Opportunities

### Work-Based Learning Activities

- Participate in an internship with an electrical company to develop installation skills
- Join a pre-apprenticeship program that involves determining if electrical wiring is up to code
- Interview an electrician about their training and education
- education

### Expanded Learning Opportunities

- Participate in SkillsUSA
- Participate in trade competitions

## Aligned Industry-Based Certifications

- NCCER Construction Technology Certification Level I
- NCCER Core
- NCCER Electrical Level I
- NCCER Electrical Level II



Successful completion of the Electrical program of study will fulfill requirements of the Business and Industry endorsement.



## Example Postsecondary Opportunities

### Apprenticeships

- Electrician

### Associate Degrees

- Electrical and Power Transmission Installation
- Electrical Power and Controls
- Electromechanical Technology

### Bachelor's Degrees

- Construction Engineering
- Electrical, Electronic, and Communications
- Engineering Electrical Engineering

### Master's, Doctoral, and Professional Degrees

- Construction Engineering
- Construction Management

### Additional Stackable IBCs/License

- Journeyman Electrician
- Master Electrician



## Example Aligned Occupations

### Electricians Helpers

Median Wage: \$38,140  
Annual Openings: 1,632  
10-Year Growth: 20%

### Electricians

Median Wage: \$54,769  
Annual Openings: 9,221  
10-Year Growth: 27%

### Construction Managers

Median Wage: \$95,072  
Annual Openings: 6,325  
10-Year Growth: 24%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



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## Statewide Program of Study: HVAC and Sheet Metal

The HVAC and Sheet Metal program of study focuses on occupational and educational opportunities associated with installing, servicing, or repairing heating and air conditioning systems. The program of study addresses fabrication, assembly, installation, and repair of sheet metal products and equipment, such as ducts, control boxes, drainpipes, and furnace casings.

### Secondary Courses for High School Credit

Level 1	<ul style="list-style-type: none"> <li>Principles of Architecture</li> <li>Principles of Construction</li> </ul>
Level 2	<ul style="list-style-type: none"> <li>Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I</li> </ul>
Level 3	<ul style="list-style-type: none"> <li>Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II</li> </ul>
Level 4	<ul style="list-style-type: none"> <li>Practicum in Construction Technology</li> <li>Career Preparation for Programs of Study</li> </ul>

### Aligned Advanced Academic Courses

<b>Dual Credit</b>	Dual credit offerings will vary by local education agency.
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### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Participate in a pre-apprenticeship in HVAC and refrigeration</li> <li>Intern with an HVAC company to practice installing and repairing heating and cooling systems</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Job shadow an HVAC technician or cost estimator</li> <li>Participate in SkillsUSA</li> </ul>

### Aligned Industry-Based Certifications

- NCCER Construction Technology Certification Level I
- NCCER Core
- NCCER Heating, Ventilation, Air Conditioning Level I
- NCCER Sheet Metal Level I
- Refrigerant Handling (EPA 608)



### Example Postsecondary Opportunities

#### Apprenticeships

- Heating and Air Conditioning Installer

#### Associate Degrees

- Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology
- Construction Site Management
- Property Maintenance
- Sheet Metal Technology/Sheetworking

#### Bachelor's Degrees

- Construction Engineering
- Construction Management
- Building/Construction Site Management
- Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology

#### Master's, Doctoral, and Professional Degrees

- Construction Engineering
- Construction Management

### Example Aligned Occupations

#### Helpers—Installation, Maintenance, and Repair Workers

Median Wage: \$33,348  
Annual Openings: 2,366  
10-Year Growth: 22%

#### Heating, Air Conditioning, and Refrigeration Mechanics and Installers

Median Wage: \$48,722  
Annual Openings: 3,719  
10-Year Growth: 21%

#### Construction Managers

Median Wage: \$95,072  
Annual Openings: 6,325  
10-Year Growth: 24%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024

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