



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 architects, carpenters, and construction managers to electricians, plumbers, and heating, air conditioning, and refrigeration technicians.

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



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

Aligned Advanced Academic Courses

Dual Credit	Dual credit offerings will vary by local education agency.
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Students who earn all college credits within this program of study will be eligible to graduate from Southwest Texas College with a Level I Certificate in Air Conditioning and Refrigeration Technology.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Participate in a pre-apprenticeship in HVAC and refrigeration
- Intern with an HVAC company to practice installing and repairing heating and cooling systems

Expanded Learning Opportunities

- Job shadow an HVAC technician or cost estimator
- Participate in SkillsUSA

Aligned Industry-Based Certifications

- NCCER Core
- 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 3/8/20240

For more information visit:

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



COURSE INFORMATION

COURSE NAME	COURSE NUMBER AND CREDITS	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	8410CC (1 credit)	None	9-10
HVAC I Dual Credit	8426DC and 8426D2 (1 credit)	Principles of Construction and SWTX reqs.	10-11
HVAC II Dual Credit	8427D1 and 8427D2 (2 credits)	HVAC I and SWTX reqs.	11-12
HVAC III Dual Credit	8428D1 and 8428D2 (3 credits)	HVAC II and SWTX reqs.	12
Extended Career Prep for Programs of Study Reg or DC	8607 (3 credits) or 8607DC & D2 (3 credits)	HVAC I DC: pre-req & SWTC reqs.	12

COURSE DESCRIPTIONS

Principles of Construction:

This course helps build foundation skills in construction. Jobsite safety, construction math, hand tools and power tools training coupled with communication and employability skills provide an excellent opportunity and insight into the career paths of the construction industry.

HVAC I Dual Credit:

College Credit: CETT 1302

Students gain knowledge and skills specific to those needed to enter the industry as technicians in the HVAC and refrigeration industry or building maintenance technician or supervisor or prepare for a postsecondary degree. Students acquire knowledge and skills in safety, principles of HVAC theory, tools, codes, and installation of HVAC and refrigeration equipment.

HVAC II Dual Credit:

College Credits: HART 1407 & HART 1403

Students gain advanced knowledge and skills specific to those needed to enter the industry as HVAC and refrigeration technicians or building maintenance technicians or supervisors or prepare for a postsecondary degree. Students acquire knowledge and skills in safety, electrical theory, tools, codes, installation of commercial HVAC equipment, heat pumps, troubleshooting techniques, various duct systems, and maintenance practices.

HVAC III Dual Credit:

College Credits: HART 1403, 1441 , & 2438

This is an occupationally specific course designed to provide classroom technical instruction or on-the-job training experiences. Safety and career opportunities are included in addition to work ethics and job-related study in the classroom.

Extended Career Prep for Programs of Study Reg or DC:

College Credit: BMGT 1382

Students are given the opportunity to work in their program of study while earning high school credit and develop employment experiences, which must be related to the student's current program of study alongside advanced classroom instruction. The goal is to prepare students with a variety of skills to transition from job- to career-mindedness. This course provides a continuing focus on collaborative feedback between the employer, teacher, and student. Students are taught about finding their future careers, keeping, as well as leaving, a job, and how to expound on their employable talents.

Courses in yellow are Level 3 or 4 courses.



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