

Local Implementation Considerations:

Students completing two or more courses for two or more credits within a program of study earn concentrator status for Perkins V federal accountability reporting.

Proposed Indicator: Students finishing three or more courses for four or more credits with one course from level 3 or 4 within a program of study earn completer status for federal accountability reporting.



COURSES

Principles of Architecture

ARCHITECTURAL DESIGN

LEVEL 2

LEVEL 3

Architectural Design I Interior Design I Computer Aided Drafting for Architecture (TBD)

Architectural Design II Interior Design II Civil Engineering and Architecture (PLTW)

Practicum in Architectural Design Career Preparation I

MEDIAN

WAGE

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Autodesk Certified Professional or User in AutoCAD	Certified Photogrammetric Technologist	Architecture		
Autodesk Certified Professional or User in AutoCAD Civil 3D	Certified Development, Design & Construction Professional	Interior Design		Interior Architecture
Autodesk Certified Professional or User in Autodesk Revit Architecture	National Council Certified Interior Designer	3 3,		eral
Autodesk Certified Professional or User in Autodesk Revit MEP Electrical	LEED AP Building Design & Construction	Geographic Information Science and Cartography		nd Cartography

Architects	\$77,043	808	16%
Geographic Information Analysts and Surveyors	\$58,926	162	27%
Architectural/ Civil Drafters	\$50,170	1,068	9%
Construction Managers	\$87,402	2,401	14%

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit $\ensuremath{\mathsf{TXCTE}}.\mathsf{org}.$

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities: Shadow an architect, interior designer, or civil engineer. SkillsUSA

OCCUPATIONS

Work Based Learning Activities:

Intern at an architecture firm.

ANNUAL %
OPENINGS GROWTH

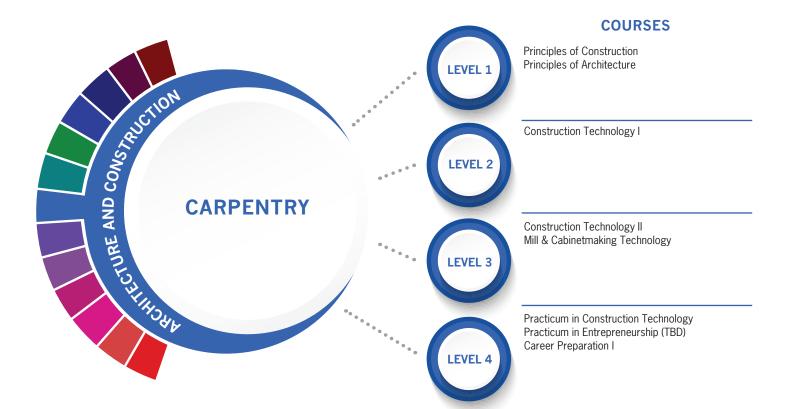
The Architectural Design program of study explores the occupations and educational opportunities associated with developing, engineering, and designing building structures and facilities. This program of study may also include exploration into collecting and interpreting geographic information, researching and preparing maps, and interior design.





COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Architecture	13004210 (1 credit)	None	9-12
Architectural Design I	13004600 (1 credit)	PREQ: Algebra I and English I	10-12
Interior Design I	13004300 (1 credit)	PREQ: Algebra I and English I	10-12
Computer Aided Drafting for Architecture (TBD)	TBD	TBD	TBD
Architectural Design II	13004700 (2 credits)	PREQ: Architectural Design I or Advanced Interior Design and Geometry	11-12
Interior Design II	13004400 (2 credits)	PREO: English II, Geometry, and Interior Design I	11-12
Civil Engineering and Architecture (PLTW)	N1303747 (1 credit)	None	9-12
Practicum in Architectural Design	13004800 (2 credits) 13004805 (3 credits) 13004810 (2 credits) 13004815 (3 credits)	PREQ: Architectural Design II	12
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT:



HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
NCCER Carpentry, Level 1 & 2	Certified Lead Carpenter	Carpentry/ Carpenter	Construction Science	Construction Management
NCCER Commercial Carpenter	Certified Installer	Industrial Mechanics and Maintenance Technology		
NCCER Core Curriculum	Certified Door Consultant			
NCCER Construction Technology	Fluid Power Connector and Conductor			

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Carpenters	\$35,922	5,031	26%
Cost Estimators	\$63,939	2,239	21%

Additional industry based certification information is available from the TEA CTE website.

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WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities: Shadow a carpenter or millwright. SkillUSA Work Based Learning Activities:
Obtain an NCCER

certification in Millwright
Level 1 or Carpentry Level

The Carpentry program of study explores the occupations and educational opportunities related to constructing, installing, or repairing structures and fixtures made of wood, such as concrete forms (including frameworks, partitions, joists, studding, rafters, and stairways). This program of study may also include exploration into installing, dismantling, or moving machinery and heavy equipment according to layout plans, blueprints, or other drawings.





COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	13004220 (1 credit)	None	9-12
Principles of Architecture	13004210 (1 credit)	None	9-12
Construction Technology I	13005100 (2 credits)	None	10-12
Construction Technology II	13005200 (2 credits)	PREQ: Construction Technology I	11-12
Mill & Cabinetmaking Technology	13005300 (2 credits)	None	10-12
Practicum in Construction Technology	13005250 (2 credits) 13005255 (3 credits) 13005260 (2 credits) 13005265 (3 credits)	PREO: Construction Technology II, Building Maintenance Technology II, Electrical Technology II, Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II, Plumbing Technology I, or Mill and Cabinetmaking Technology	12
Practicum in Entrepreneurship	TBD	TBD	TBD
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT:

COURSES Principles of Construction Building Maintenance Technology I Construction Management I CONSTRUCTION MANAGEMENT AND INSPECTION Practicum in Construction Management Career Preparation I COURSES Principles of Construction Building Maintenance Technology II Construction Management II Practicum in Construction Management Career Preparation I

LEVEL 4

OCCUPATIONS

Construction and

Building Inspectors

Cost Estimators

Construction

Managers

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATES DEGREE	BACHELOR S DEGREE	MASTER S/ DOCTORAL PROFESSIONAL DEGREE	
NCCER Construction Technology	Code Enforcement Officer, Texas Department of Health Code Enforcement		n Engineering r/Technician	Materials Engineering	
NCCER Core Curriculum	Certified Cost Estimator/ Analyst	Business Administration and Management, General			
OSHA 30 Hour Construction	Certified Professional Estimator	Mechanical Engineering			
NCCER Construction Site Safety Technician	Structural Masonry Special Inspector	Business/Com	merce, General	Manufacturing Engineering	
Additional in	Additional industry based certification information is available from the TEA CTE website.				

WC		ARNING AND EXPANDED OPPORTUNITIES
Explora	tion Activities:	Work Based Learning

\$87.402

MEDIAN

WAGE

\$53,914

\$63,939

For more information on postsecondary options for this program of study, visit TXCTE.org.

Shadow a building inspector or cost estimator SkillsUSA

Activities: Intern with a construction company shadowing project managers or inspectors

The Building Codes and Inspection program of study explores the occupations and educational opportunities associated with cost estimates for construction projects or services to aid management in bidding on or determining the price of products or services. This program of study may also include exploration into inspecting structures using engineering skills to determine structural soundness and compliance with specifications, building codes, and other regulations.



The Architecture and Construction Career Cluster® focuses on designing, planning, managing, building, and maintaining the built environment. Principles of Architecture provides an overview to the various fields of architecture, interior design, and construction management.



ANNUAL %
OPENINGS GROWTH

17%

21%

14%

983

2,239

2,401

COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	13004220 (1 credit)	None	9-12
Building Maintenance Technology I	13005400 (2 credits)	None	10-12
Construction Management I	13004900 (2 credits)	None	10-12
Building Maintenance Technology II	13005500 (2 credits)	PREQ: Building Maintenance Technology I	11-12
Construction Management II	13005000 (2 credits)	PREQ: Construction Management I	11-12
Practicum in Construction Management	13006200 (2 credits) 13006210 (3 credits) 13006205 (2 credits) 13006215 (3 credits)	PREQ: Construction Management II	12
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT:

COURSES

Principles of Construction

ELECTRICAL

LEVEL 2

LEVEL 3

LEVEL 4

Electrical Technology II

Electrical Technology I

Practicum in Construction Technology Practicum in Entrepreneurship (TBD) Career Preparation I

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
NCCER Electrical, Level 1 & 2	Electrical Plans Examiner	Electrician	Construction Science	Construction Management
NCCER Electronic Systems Technician, Level 1 & 2	Certified Electrical Inspector - Master	Communications Systems Installation and Repair Technology		
Electrical Apprenticeship Certificate, Level 1	Fiber Optics Technician - Outside Plant			
NCCER Commercial Electrician	Certification in Fire Alarm Systems - Level 1			

WAGE	OPENINGS	GROWTH
\$54,184	1,314	28%
\$44,013	8,460	21%
\$37,544	245	19%
\$43,638	1,112	22%
\$49,150	1,228	10%
	\$54,184 \$44,013 \$37,544 \$43,638	WAGE OPENINGS \$54,184 1,314 \$44,013 8,460 \$37,544 245 \$43,638 1,112

MEDIANI ANNUAL

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities:Shadow an electrician or fiber optics line installer SkillsUSA

Work Based Learning Activities:
Intern or shadow an

electrician

The Electrical program of study explores the occupations and educational opportunities associated with installing, maintaining, and repairing electrical wiring, equipment, and fixtures. This program of study may also include exploration into installing and repairing telecommunications cable including fiber optics.





COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	13004220 (1 credit)	None	9-12
Electrical Technology I	13005600 (1 credit)	None	10-12
Electrical Technology II	13005700 (2 credit)	PREQ: Electrical Technology I	11-12
Practicum in Construction Technology	13005250 (2 credits) 13005255 (3 credits) 13005260 (2 credits) 13005265 (3 credits)	PREQ: Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	12
Practicum in Entrepreneurship	TBD	TBD	TBD
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT:

COURSES

Principles of Construction APCHINE AND CONSTRUCTION AND LONGING LEVEL 2 **HVAC AND** SHEET METAL LEVEL 3 LEVEL 4

Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I

Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II Sheet Metal (TBD)

Practicum in Construction Technology Practicum in Entrepreneurship (TBD) Career Preparation I

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Refrigerant Handling (EPA 608)	Residential HVAC Design for Quality Installation	Business Admin	istration and Manag	gement, General
OSHA 30 Hour Construction	Certified Cost Technician	Mechanical Engineering		
NCCER HVAC, Level 1	Precision Sheet Metal Operator Certification	Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/ Technician	Construction Engineering Technology/ Technician	Construction Engineering
NCCER Sheet Metal, Level 1	Certified Ventilation System Inspector	Business/Commerce, General		eneral

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	GROWTH
Heating, Air Conditioning, and Refrigeration Mechanics	\$41,808	3,356	26%
Sheet Metal Workers	\$37,419	1,479	17%
Cost Estimators	\$63,939	2,239	21%

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities: Shadow an HVAC worker or cost estimator SkillUSA

Work Based Learning **Activities:** Intern with a company

that works with HVAC and/or sheetmetal

The HVAC and Sheet Metal program of study explores the occupations and educational opportunities associated with installing, serving, or repairing heating and air conditioning systems and also the fabrication, assembly, installation, and repair of sheet metal products and equipment, such as ducts, control boxes, drainpipes, and furnace casings. This program of study may also include exploration into preparing cost estimates for certain construction projects involving heating and air conditioning and sheet metal.





COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	13004220 (1 credit)	None	9-12
Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I	13005800 (1 credit)	None	10-12
Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II	13005900 (2 credits)	PREQ: Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I	11-12
Sheet Metal	TBD	TBD	TBD
Practicum in Construction Technology	13005250 (2 credits) 13005255 (3 credits) 13005260 (2 credits) 13005265 (3 credits)	PREQ: Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	12
Practicum in Entrepreneurship (TBD)	TBD	TBD	TBD
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT:

COURSES Principles of Construction APCHURE AND CONSTRUCTOR Masonry Technology I LEVEL 2 **MASONRY** Masonry Technology II LEVEL 3 Practicum in Masonry Technology Practicum in Construction Technology

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
NCCER Masonry, Level 1 & 2	Structural Masonry Special Inspector	Mason/ Masonry	Construction Science	Construction Management
NCCER Core Curriculum	Structural Steel and Bolting Special Inspector			
NCCER Construction Technology, Level 1	Masonry Contractor			
NCCER Weatherization, Level 1	Masonry Field Testing Technician			

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Brickmasons and Blockmasons	\$44,013	605	47%
Cement Masons and Concrete Finishers	\$32,739	2,883	12%
Cost Estimators	\$63,939	2,239	21%

Practicum in Entrepreneurship (TBD)

Career Preparation I

LEVEL 4

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities:

Job shadow a

brickmason, stonemason, Intern with a person

or ironworker. SkillsUSA

Work Based Learning **Activities:**

working within masonry.

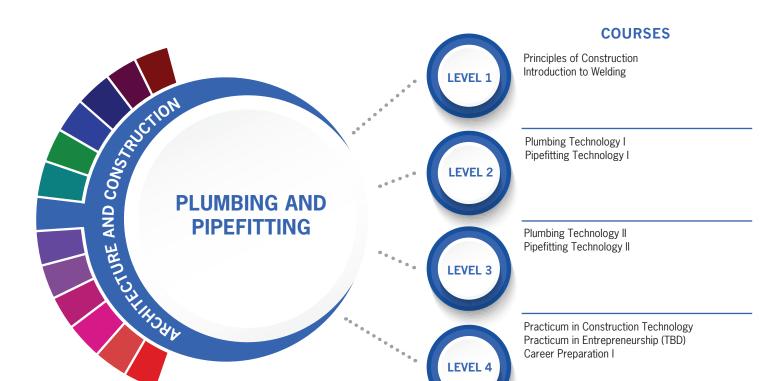
The Masonry program of study explores the occupations and educational opportunities related to laying and binding materials, such as brick, structural tile, concrete block, and other types of mortar and substances to construct or repair walls and other structures. This program of study may also include exploration into raising and uniting iron or steel to form completed structures or structural frameworks, and building structures using stone.





COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	13004220 (1 credit)	None	9-12
Masonry Technology I	13006300 (2 credits)	None	10-12
Masonry Technology II	13006400 (2 credits)	PREQ: Masonry Technology I	11-12
Practicum in Masonry Technology	13006450 (2 credits) 13006455 (3 credits) 13006460 (2 credits) 13006465 (3 credits)	PREQ: Masonry Technology II	12
Practicum in Construction Technology	13005250 (2 credits) 13005255 (3 credits) 13005260 (2 credits) 13005265 (3 credits)	PREQ: Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	12
Practicum in Entrepreneurship	TBD	TBD	TBD
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT:



HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
NCCER Pipefitting, Level	Commercial Plumbing Inspector	Plumbing Technology/ Plumber	Construction Science	Construction Management
NCCER Plumbing, Level 1 & 2	Journey Level Pipefitter- Steamfitter	Electrical and Power Transmission Installation/ Installer, General		nagement and rvision
NCCER Construction Technology	Plumbing Plans Inspector	Pipefitting/ Pipefitter and Sprinkler Fitter		
Tradesman Plumber - Limited License	Certified Service Manager	High Performance and Custom Engine Technician/ Mechanic		

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Mechanics, Installers, and Repairers	\$63,710	4,243	17%
Plumbers, Pipefitters and Steamfitters	\$44,928	5,765	23%
Helpers-Pipelayers, Plumbers, Pipefitters, and Steamfitters	\$30,098	1,567	18%
Pipe Installers	\$31,616	802	21%

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities:Job shadow a plumber, pipefitter, or steamfitter SkillsUSA

Work Based Learning Activities:

Obtain a Core Curriculum NCCER certification in Pipefitting Level 1 or Plumbing Level 1

The Plumbing and Pipefitting program of study explores the occupations and educational opportunities related to assembling, installing, or repairing pipes, fittings, or fixtures of heating, water, or drainage systems. This program of study may also include exploration into maintaining pipe supports or related hydraulic or pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, or industrial production or processing systems.





COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Principles of Construction	13004220 (1 credit)	None	9-12
Introduction to Welding	13032250 (1 credit)	None	9-12
Plumbing Technology I	13006000 (1 credit)	None	10-12
Pipefitting Technology I	N1300425 (1 credit)	PREQ: Algebra I and Geometry	11-12
Plumbing Technology II	13006100 (2 credits)	PREQ: Plumbing Technology I	11-12
Pipefitting Technology II	N1300426 (1 credit)	PREQ: Pipefitting Technology I	11-12
Practicum in Construction Technology	13005250 (2 credits) 13005255 (3 credits) 13005260 (2 credits) 13005265 (3 credits)	PREQ: Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	12
Practicum in Entrepreneurship	TBD	TBD	TBD
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER, PLEASE CONTACT: