



Architecture and Construction Career Cluster

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.

Architectural and Interior Design *Statewide Program of Study*



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.

Carpentry *Statewide Program of Study*



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.

Electrical *Statewide Program of Study*



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.

HVAC and Sheet Metal *Statewide Program of Study*



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.

Successful completion of the Architectural Design, Carpentry, Electrical, HVAC and Sheet Metal, and Plumbing and Pipefitting program of study will fulfill requirements of the Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022



Architectural Design Statewide Program of Study

Plumbing and Pipefitting Statewide Program of Study



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.

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Garland ISD, no discrimina por motivos de raza, color, origen nacional, sexo, o discapacidad en sus programas o actividades y brinda igualdad de acceso a los Boy Scouts y otros grupos juveniles designados. La siguiente persona ha sido designada para manejar consultas sobre las políticas de no discriminación: Coordinadora del Título IX, Dra. Susanna Russell, Chief Leadership Officer Ejecutiva de Liderazgo en 501 S. Jupiter Road, Garland, TX 75042 (972) 487-3041 russell@garlandisd.net, y/o la Coordinadora de la Sección 504, Dra. Wendy Brower, Coordinadora, Educación Especial en 501 S. Jupiter Road, Garland, TX 75042 (972) 487-3364 wlbrower@garlandisd.net.

Successful completion of the Architectural Design program of study will fulfill requirements of the Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022



Architectural and Interior Design

Statewide Program of Study

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.

Secondary Courses for High School Credit

Level 1

8B100, Principles of Architecture

Level 2

8B200, 8B205DC, 8B700MST, Architectural Design I

8B220 Interior Design I

Level 3

8B900, 8B905 DC Architectural Design II (GRCTC)

8B950 Interior Design II (GRCTC)

Level 4

8B910, 8B915DC Practicum in Architectural Design (GRCTC)

8B920 Career Preparation: Interior Design (GRCTC)

8Q360 Career Preparation

Postsecondary Opportunities

Associates Degrees

- Architecture
- Interior Design
- Civil Engineering, General
- Geographic Information Science and Cartography

Bachelor's Degrees

- Architecture
- Interior Design
- Civil Engineering, General
- Geographic Information Science and Cartography

Master's, Doctoral, and Professional Degrees

- Architecture
- Interior Architecture
- Civil Engineering, General
- Geographic Information Science and Cartography

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> • Shadow an architect, interior designer or civil engineer • Participate in SkillsUSA 	<ul style="list-style-type: none"> • Intern at an architectural firm

Industry-Based Certifications

- Autodesk Associate (Certified User)
- SOLIDWORKS Associate (CSWA)
- Autodesk Associate (Certified User) AutoCAD
- Revit Architecture
- LEED Green Associate

- Mastercam Associate Certification*

*IBC sunsetting 8/31/24



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
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%

Successful completion of the Architectural Design program of study will fulfill requirements of the Business and Industry or STEM endorsement if the math and science requirements are met. Revised – August 2022

Architectural Design Course Information

Level 1

COURSE	SERVICE ID	PREREQUISITES	COREQUISITES
8B100 Principles of Architecture	13004210 (1 credit)	None	8-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B200, 8B205DC, 8B700MST Architectural Design I	13004600 (1 credit)	Algebra I and English I	9-12
8B220 Interior Design I	13004300 (1 credit)	Algebra I and English I	9-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B900, 8B905DC (GRCTC) Architectural Design II	13004700 (2 credits)	Architectural Design I or Advanced Interior Design and Geometry	11-12
8B950 (GRCTC) Interior Design II	13004400 (2 credits)	English II, Geometry, and Interior Design I	11-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B910, 8B915DC (GRCTC) Practicum in Architectural Design	13004800 (2 credits)	Architectural Design II	11-12
8B920 (GRCTC) Career Preparation Interior Design	12701305 (2 credits)	Interior Design II	11-12
8Q360 Career Preparation All Campus	12701300 (2 credits)	None	11-12

Level 3 and Level 4 classes are Advanced CTE Courses



Carpentry

Statewide Program of Study

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.

Secondary Courses for High School Credit

Level 1

8B150, 8B155 DC (NFHS) Principles of Construction
8B100 Principles of Architecture

Level 2

8B230, 8B235 DC (NFHS) Construction Technology I (NFHS & GHS)

Level 3

8B420 Construction Technology II (NFHS & GHS)
8B360 Mill & Cabinetmaking Technology (GHS)

Level 4

8B460 Practicum in Construction Technology (GHS) & (NFHS)
8Q360 Career Preparation

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> Shadow a carpenter or millwright Participate in SkillsUSA 	<ul style="list-style-type: none"> Obtain an NCCER certification in Millwright Level 1 or Carpentry Level 1

Industry-Based Certifications

- NCCER Core
- NCCER Carpentry Level I

Postsecondary Opportunities

Associates Degrees

- Carpentry/Carpenter
- Industrial Mechanics and Maintenance Technology

Bachelor's Degrees

- Construction Science

Master's, Doctoral, and Professional Degrees

- Construction Management



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Carpenters	\$35,922	5,031	26%
Cost Estimators	\$63,939	2,239	21%

Successful completion of the Carpentry program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

Carpentry Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B150, 8B155 DC (NFHS) Principles of Construction	13004220 (1 credit)	None	9-12
8B100 Principles of Architecture	13004210 (1 credit)	None	8-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B230, 8B235 DC (NFHS) Construction Technology I	13005100 (2 credits)	None	10-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B420 (NFHS) Construction Technology II	13005200 (2 credits)	Construction Technology I	11-12
8B360 (GHS) Mill & Cabinetmaking Technology	13005300 (2 credits)	None	10-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B460 (GHS & NFHS) Practicum in Construction Technology	13005250 (2 credits) 13005255 (3 credits)	Construction Technology II, Building Maintenance Technology II, Electrical Technology II, Heating, Ventilation Air Conditioning (HVAC) and Refrigeration Technology II, Plumbing Technology I, or Mill and Cabinetmaking Technology	11-12
8Q360, Career Preparation I (All campus)	12701300 (2 credits)	None	11-12

Level 3 and Level 4 classes are Advanced CTE Courses



Electrical

Statewide Program of Study

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.

Secondary Courses for High School Credit

Level 1

8B150 Principles of Construction

Level 2

8B9305 Electrical Technology I (GRCTC-Fall)

8B931S Electrical Technology project Based Research 1 (GRCTC-Spring)

Level 3

8B940 Electrical Technology II (GRCTC)

Level 4

8B942 Practicum in Construction Technology (GRCTC)

8Q960 Career Preparation I (GRCTC)

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> Shadow an electrician or fiber optics line installer Participate in SkillsUSA 	<ul style="list-style-type: none"> Intern or shadow an electrician

Industry-Based Certifications

- NCCER Core
- NCCER Electrical Level I

Postsecondary Opportunities

Associates Degrees

- Electrician
- Communications Systems Installation and Repair Technology

Bachelor's Degrees

- Construction Science

Master's, Doctoral, and Professional Degrees

- Construction Management



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Electrical Linemen	\$54,184	1,314	28%
Electricians	\$44,013	8,460	21%
Electrical and Electronics Installers	\$37,544	245	19%
Security and Fire Alarm Installers	\$43,638	1,112	22%
Telecommunication Line Installers and Repairers	\$49,150	1,228	10%

Successful completion of the Electrical program of study will fulfill requirements of the Business and Industry endorsement and STEM endorsement if the math and science requirements are met. Revised – August 2022

Electrical Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B150 Principles of Construction	13004220 (1 credit)	None	9-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES (CREQ)
8B930S (Fall) (GRCTC) Electrical Technology I	13005600 (1 credit)	None	10-12
8B931S (Spring) (GRCTC) Electrical Technology Project Based Research 1	12701500 (1 credit)	None	10-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B940 Electrical Technology II (GRCTC)	13005700 (2 credits)	Electrical Technology I	11-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B942 Practicum in Construction Technology (GRCTC)	13005250 (2 credits)	Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	11-12
8Q960 Career Preparation I (GRCTC)	12701300 (2 credits)	None	11-12

Level 3 and Level 4 classes are Advanced CTE Courses



HVAC and Sheet Metal

(Naaman Forest Pathway)

Statewide Program of Study

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.

Secondary Courses for High School Credit

Level 1

8B150 Principles of Construction

Level 2

8B250 Heating, Ventilation Air Conditioning (HVAC) and Refrigeration Technology I (NFHS)

Level 3

8B260 Heating, Ventilation Air Conditioning (HVAC) and Refrigeration Technology II (NFHS)

Level 4

8B460 Practicum in Construction Technology (NFHS)
8Q360 Career Preparation I All campus

Postsecondary Opportunities

Associates Degrees

- Business Administration and Management, General
- Mechanical Engineering
- Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/ Technician
- Business/ Commerce, General

Bachelor's Degrees

- Business Administration and Management
- Mechanical Engineering
- Construction Engineering Technology/ Technician
- Business/ Commerce, General

Master's, Doctoral, and Professional Degrees

- Business Administration and Management
- Mechanical Engineering
- Construction Engineering
- Business/Commerce, General

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> • Shadow an HVAC worker or cost estimator • Participate in SkillsUSA 	<ul style="list-style-type: none"> • Intern with an HVAC and/or sheet metal company

Industry-Based Certifications

- NCCER Core
- NCCER Heating, Ventilation, Air Conditioning Level I
- Refrigerant Handling (EPA 608)



Aligned Occupations

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%

Successful completion of the HVAC and Sheet Metal program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

HVAC and Sheet Metal Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B150 Principles of Construction	13004220 (1 credit)	None	9-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B250 Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I (NFHS)	13005800 (1 credit)	None	10-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B260 Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II (NFHS)	13005900 (2 credits)	Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I	11-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B460 Practicum in Construction Technology (NFHS)	13005250 (2 credits)	Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	11-12
8Q360 Career Preparation I	12701300 (2 credits)	None Coherent Sequence	11-12

Level 3 and Level 4 classes are Advanced CTE Courses



Plumbing and Pipefitting

Statewide Program of Study

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.

Secondary Courses for High School Credit

Level 1

8B150 Principles of Construction

Level 2

8B280 Plumbing Technology I (NFHS)

Level 3

8B290 Plumbing Technology II (NFHS)

Level 4

8B460 Practicum in Construction Technology (NFHS)

8Q360 Career Preparation

Postsecondary Opportunities

Associates Degrees

- Plumbing Technology/ Plumber
- Electrical and Power Transmission Installation/ Installer, General
- Pipefitting/ Pipefitter and Sprinkler Fitter
- High Performance and Custom Engine Technician/ Mechanic

Bachelor's Degrees

- Construction Science
- Operations Management and Supervision

Master's, Doctoral, and Professional Degrees

- Construction Management
- Operations Management and Supervision

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> • Job shadow a plumber, pipefitter, or steamfitter • Participate in SkillsUSA 	<ul style="list-style-type: none"> • Obtain a Core Curriculum NCCER certification in Pipefitting Level I or Plumbing Level I

Industry-Based Certifications

- NCCER Core
- NCCER Pipefitting, Level I
- NCCER Plumbing, Level I



Aligned Occupations

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%

Successful completion of the Plumbing and Pipefitting program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022



Plumbing and Pipefitting Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B150 Principles of Construction	13004220 (1 credit)	None	9-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B280 Plumbing Technology I (NFHS)	13006000 (1 credit)	None	10-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B290 Plumbing Technology II (NFHS)	13006100 (2 credits)	Plumbing Technology I	11-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
8B460 Practicum in Construction Technology (NFHS)	13005250 (2 credits)	Construction Technology II; Building Maintenance Technology II; Electrical Technology II; Heating, Ventilation Air Conditioning (HVAC) and Refrigeration Technology II; Plumbing Technology I; or Mill and Cabinetmaking Technology	11-12
8Q360 Career Preparation	12701300 (2 credits)	None Coherent Sequence	11-12

Level 3 and Level 4 classes are Advanced CTE Courses



Architecture and Construction

Architectural Design I 8B200, 8B205DC, 8B700MST

TSDS PEIMS Code: 13004600 (ARCHDSN1)

Grade Placement: 10–12 Credit: 1

Prerequisites: Algebra I and English I.

Recommended Prerequisites: Geometry, Principles of Architecture, and Principles of Construction. In Architectural Design I, students will gain knowledge and skills needed to enter a career in architecture or construction or prepare a foundation toward a post-secondary degree in architecture, construction science, drafting, interior design, or landscape architecture.

Architectural Design I includes the knowledge of the design, design history, techniques, and tools related to the production of drawings, renderings, and scaled models for nonresidential or residential architectural purposes.

Architectural Design II 8B900, 8B905DC

TSDS PEIMS Code: 13004700 (ARCHDSN2)

Grade Placement: 11–12 Credit: 2

Prerequisites: Architectural Design I or Advanced Interior Design and Geometry. Recommended Prerequisites: Principles of Architecture and Principles of Construction.

In Architectural Design II, students will gain advanced knowledge and skills needed to enter a career in architecture or construction or prepare a foundation toward a postsecondary degree in architecture, construction science, drafting, interior design, or landscape architecture.

Architectural Design II includes the advanced knowledge of the design, design history, techniques, and tools related to the production of drawings, renderings, and scaled models for nonresidential or residential architectural purposes.

Career Preparation 8Q360 or **Career Preparation: Interior Design** 8B920 (GRCTC)

TSDS PEIMS Code: 12701300 (CAREERP1)

Grade Placement: 11–12 Credit: 2

Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.



Architecture and Construction

Construction Technology I 8B230

TSDS PEIMS Code: 13005100 (CONTECH1)

Grade Placement: 10–12 Credit: 2

Recommended Prerequisite: Principles of Construction or Principles of Architecture. In Construction Technology I, students will gain knowledge and skills needed to enter the workforce as carpenters or building maintenance supervisors or to prepare for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in safety, tool usage, building materials, codes, and framing. For safety and liability considerations, limiting course enrollment to 15 students is recommended.

Construction Technology II 8B420

TSDS PEIMS Code: 13005200 (CONTECH2)

Grade Placement: 11–12 Credit: 2

Prerequisite: Construction Technology I. In Construction Technology II, students will gain advanced knowledge and skills needed to enter the workforce as carpenters, building maintenance technicians, or supervisors or to prepare for a postsecondary degree in construction management, architecture, or engineering. Students will build on the knowledge base from Construction Technology I and are introduced to exterior and interior finish out skills. For safety and liability considerations, limiting course enrollment to 15 students is recommended.

Electrical Technology I 8B930S (Fall) (GRCTC)

TSDS PEIMS Code: 13005600 (ELECTEC1)

Grade Placement: 10–12 Credit: 1

Recommended Prerequisites: Principles of Architecture or Principles of Construction. In Electrical Technology I, students will gain knowledge and skills needed to enter the workforce as an electrician or building maintenance supervisor, prepare for a postsecondary degree in a specified field of construction or construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications.

Electrical Technology II 8B940

TSDS PEIMS Code: 13005700 (ELECTEC2)

Grade Placement: 11–12 Credit: 2

Prerequisite: Electrical Technology I. Recommended Prerequisites: Principles of Architecture or Principles of Construction. In Electrical Technology II, students will gain advanced knowledge and skills needed to enter the workforce as an electrician, a building maintenance technician, or a supervisor; prepare for a postsecondary degree in a specified field of construction or construction management; or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, alternating current and direct current motors, conductor installation, installation of electrical services, and electric lighting installation.

Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I 8B250

TSDS PEIMS Code: 13005800 (HVACREF1)

Grade Placement: 10–12 Credit: 1

Recommended Prerequisite: Principles of Architecture, Principles of Construction, or Construction Technology I. In Heating, Ventilation, and Air Conditioning and Refrigeration Technology I, students will gain knowledge and skills needed to enter the industry as technicians in the HVAC and refrigeration industry or building maintenance industry, prepare for a postsecondary degree in a specified field of construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, principles of HVAC theory, use of tools, codes, and installation of HVAC and refrigeration equipment.

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Architecture and Construction

Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II 8B260

TSDS PEIMS Code: 13005900 (HVACREF2) Grade Placement: 11–12 Credit: 2 Prerequisite: Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I. Recommended Prerequisites: Principles of Architecture or Principles of Construction. In Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II, students will gain advanced knowledge and skills needed to enter the industry as HVAC and refrigeration technicians or building maintenance technicians or supervisors, prepare for a postsecondary degree in a specified field of construction or construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, use of tools, codes, installation of commercial HVAC equipment, heat pumps, troubleshooting techniques, various duct systems, and maintenance practices.

Interior Design I 8B220

TSDS PEIMS Code: 13004300 (INTERDS1)

Grade Placement: 10–12 Credit: 1

Prerequisites: Algebra I and English I. Recommended Prerequisites: Principles of Architecture and Principles of Construction or Architectural Design I. Interior Design I is a technical course that addresses psychological, physiological, and sociological needs of individuals by enhancing the environments in which they live and work. Students will use knowledge and skills related to interior and exterior environments, construction, and furnishings to make wise consumer decisions, increase productivity, promote sustainability, and compete in industry.

Interior Design II 8B950

TSDS PEIMS Code: 13004400 (INTERDS2) Grade Placement: 11–12 Credit: 2

Prerequisites: English II, Geometry, and Interior Design I. Interior Design II is a technical laboratory course that includes the application of the employability characteristics, principles, processes, technologies, communication, tools, equipment, and materials related to interior design to meet industry standards

Mill and Cabinetmaking Technology 8B360

TSDS PEIMS Code: 13005300 (MACTECH) Grade Placement: 10–12 Credit: 2

Recommended Prerequisites: Principles of Architecture and Principles of Construction. In Mill and Cabinetmaking Technology, students will gain knowledge and skills needed to enter the workforce in millwork and cabinet manufacturing and installation. Students may also apply these skills to professions in carpentry or building maintenance supervision or use the skills as a foundation for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in cabinet design, tool usage, jointing methods, finishes, and industry-level practices such as numerical and computer-control production methods.

Plumbing Technology I 8B280

TSDS PEIMS Code: 13006000 (PLTECH1) Grade Placement: 10–12 Credit: 1

Recommended Prerequisites: Principles of Architecture Principles of Construction, or Construction Technology I. In Plumbing Technology, I, students will gain knowledge and skills needed to enter the industry as a plumbing apprentice, building maintenance technician, or supervisor or prepare for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in industry workplace basics and employer/customer expectations, including how to use a plumbing code book; how to identify and use power and hand tools; how to be safe on the jobsite and when using hand and power tools; how to apply basic plumbing mathematics and plumbing drawing; and how to identify, fit, and use plastic, copper, cast iron, carbon steel, and corrugated stainless steel pipe. In addition, students will be introduced to gas, drainage, and water supply systems and continue their knowledge of workplace basics and green technologies.

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Architecture and Construction

Plumbing Technology II 8B290

TSDS PEIMS Code: 13006100 (PLTECH2)

Grade Placement: 11–12 Credit: 2

Prerequisite: Plumbing Technology I. In Plumbing Technology II, students will gain the advanced knowledge and skills needed to enter the industry as a plumber, building maintenance technician, or supervisor or prepare for a postsecondary degree in mechanical engineering. Students will acquire knowledge and skills in plumbing codes, industry workplace basics, and employer/customer expectations, including tool and jobsite safety, advanced plumbing mathematics, commercial drawings, basic electricity, hanger installation, supports and structural penetrations, roof drains, fixture installation, valves and faucets, and oxy-fuel safety. Students will also learn about setup, cutting, brazing, and welding water system sizing; gas, drain, waste and vent installation and testing; and water heater installation.

Practicum in Architectural Design 8B910, 8B915DC

TSDS PEIMS Code: 13004800 (First Time Taken) (PRACADS1) 13004810 (Second Time Taken) (PRACADS2)

Grade Placement: 12 Credit: 2

Prerequisite: Architectural Design II. Practicum in Architectural Design is an occupationally specific course designed to provide technical instruction in architectural design. Safety and career opportunities are included in addition to work ethics and architectural design study.

Practicum in Construction Technology 8B460, GRCTC 8B942

TSDS PEIMS Code: 13005250 (First Time Taken) (PRACCT1)

Grade Placement: 12 Credit: 2

Prerequisites: 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. In Practicum in Construction Technology, students will be challenged with the application of knowledge and skills gained in previous construction-related coursework. In many cases students will be allowed to work at a job (paid or unpaid) outside of school or be involved in local projects the school has approved for this class.

Principles of Architecture 8B100

TSDS PEIMS Code: 13004210 (PRINARC)

Grade Placement: 9–12 Credit: 1

Principles of Architecture provides an overview to the various fields of architecture, interior design, and construction management. Achieving proficiency in decision making and problem solving is an essential skill for career planning and lifelong learning. Students use self-knowledge, education, and career information to set and achieve realistic career and educational goals. Job specific training can be provided through training modules that identify career goals in trade and industry areas. Classroom studies include topics such as safety, work ethics, communication, information technology applications, systems, health, environment, leadership, teamwork, ethical and legal responsibility, employability, and career development and include skills such as problem solving, critical thinking, and reading technical drawings.

Principles of Construction 8B150

TSDS PEIMS Code: 13004220 (PRINCON)

Grade Placement: 9–12 Credit: 1

Prerequisite: None. Principles of Construction is intended to provide an introduction and lay a solid foundation for those students entering the construction or craft skilled areas. The course provides a strong knowledge of construction safety, construction mathematics, and common hand and power tools. For safety and liability considerations, limiting course enrollment to 15 students is recommended. This course also provides communication and occupation skills to assist the student in obtaining and maintaining employment.