

Implementation Date  
Fall 2008

**PROGRAM CONCENTRATION:**

**Architecture, Construction,  
Communications & Transportation**

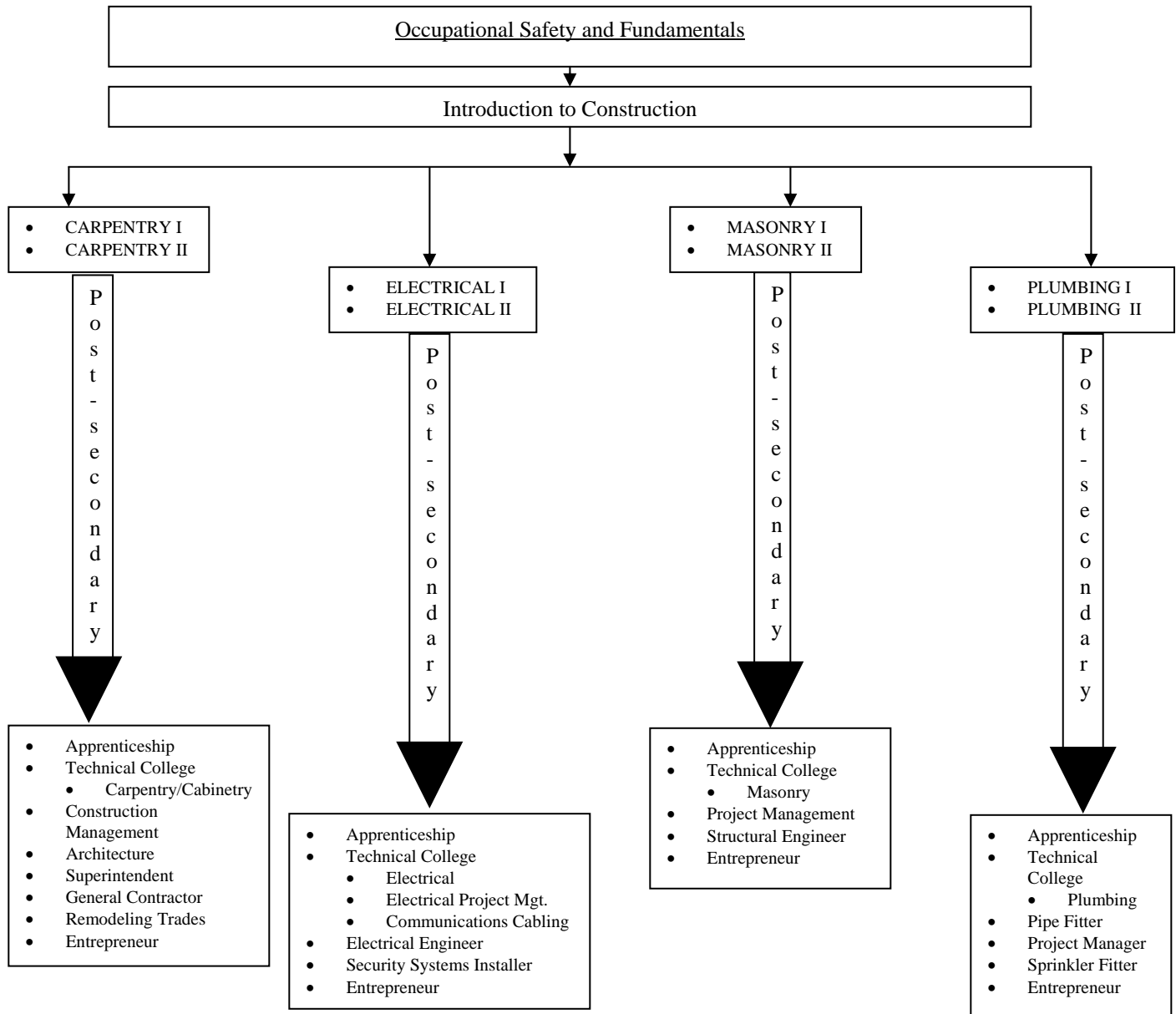
**CAREER PATHWAY:**

**Construction**

This Pathway is designed to prepare a student with foundational knowledge and skills for a construction career in one of four possible construction crafts. It also is a good pathway for a student to prepare for a variety of opportunities in addition to the craft areas, such as Architecture, Construction Engineering and Construction Management.

As the student progresses through the pathway, they are given the opportunity to explore four construction craft areas on an introductory level. Once they have completed the foundational and introductory levels they are then given the option to “major” in at least one of four craft areas. These areas are Carpentry, Masonry, Electrical, and Plumbing. Upon successful completion of four units within this Pathway, in an Industry Accredited Program, the student will earn at least two industry credentials with the possibility of others.

### The Construction Career Pathway Map



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**PROGRAM CONCENTRATION:** Architecture, Construction,  
Communications & Transportation  
**CAREER PATHWAY:** Construction  
**COURSE TITLE:** Plumbing I

This course is preceded by Introduction to Construction and is the third of four courses that provides the student a solid foundation in plumbing skills and knowledge. It is the third step in gaining a Level One Industry Certification in Plumbing.

This course provides basic skills and knowledge needed to apply OSHA and EPA safety concepts and practices as related specifically to the plumbing trade. It includes the use of plumbing tools and materials. The student is introduced to the basic knowledge and application of plumbing codes. Also included is the basic skills and knowledge required to handle, estimate, and store materials used in the plumbing trade. Involved in this process is the correct interpretation and application of basic information from architectural and construction working drawings, especially as related to plumbing installation.

**ACT-P1-1. Students will know, understand, and apply general construction and specific OSHA and EPA safety concepts and practices.**

- a. Explain the history, purpose, and construction of codes.
- b. Demonstrate use of ladder and trench safety.
- c. Demonstrate proper use of PPE.

**ACADEMIC STANDARDS:**

*SSCG15. The student will explain the functions of the departments and agencies of the federal bureaucracy.*

*SSCG18. The student will demonstrate knowledge of the powers of Georgia's state and local governments.*

*SSUSH12. The student will analyze important consequences of American industrial growth.*

*SSUSH16. The student will identify the key developments in the aftermath of WW I.*

*SSUSH19. The student will identify the origins, major developments and the domestic impact of World War II, especially in the growth of the federal government.*

*SES3. Students will explore the actions of water, wind, ice, and gravity that create landforms and systems of landforms (landscapes).*

**ACT-P1-2. Students will use tools and equipment in a professional and safe manner.**

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- a. Identify basic tools used in the pipe trades.
- b. Demonstrate proper tool care, maintenance, and safety.

**ACADEMIC STANDARDS:**

*MM1A1. Students will explore and interpret the characteristics of functions, using graphs, tables, and simple algebraic techniques.*

*MM1A2. Students will simplify and operate with radical expressions, polynomials, and rational expressions.*

*MM1A3. Students will solve simple equations.*

*MM1G1. Students will investigate properties of geometric figures in the coordinate plane.*

*SSCG15. The student will explain the functions of the departments and agencies of the federal bureaucracy.*

*ELA9RL5. Student understands and acquires new vocabulary and uses it correctly in reading and writing.*

**ACT-P1-3. Students will become familiar with the selection, handling, storage, and proper use of plumbing related construction materials.**

- a. Install pipes, fittings and valves, hangers, supports, fixtures, and appliances.

**ACADEMIC STANDARDS:**

*SSCG15. The student will explain the functions of the departments and agencies of the federal bureaucracy.*

*SEV4. Students will understand and describe availability, allocation and conservation of energy and other resources.*

**ACT-P1-4. Students will read, interpret, apply information, and estimate costs from a variety of architectural and construction working drawings.**

- a. Interpret material take-off lists and bill of materials; determine costs for plumbing materials and prepare cost estimates for both materials and labor.

**ACADEMIC STANDARDS:**

*MC1G1. Students will investigate properties of geometric figures in the coordinate plane.*

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*MC1P1. Students will solve problems (using appropriate technology).*

*MC1P4. Students will make connections among mathematical ideas and to other disciplines.*

*MC2A2. Students will solve simple equations.*

*MC2G1. Students will discover, prove, and apply properties of triangles, quadrilaterals, and other polygons.*

*MC4G1. Students will understand the properties of circles.*

*SSEM13. The student will explain how markets, prices and competition influence economic behavior.*

*SSCG18. The student will demonstrate knowledge of the powers of Georgia's state and local governments.*

*ELA9RL5. Student understands and acquires new vocabulary and uses it correctly in reading and writing.*

### **CTAE Foundation Skills**

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and post secondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

**CTAE-FS-1 Technical Skills:** Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

**CTAE-FS-2 Academic Foundations:** Learners achieve state academic standards at or above grade level.

**CTAE-FS-3 Communications:** Learners use various communication skills in expressing and interpreting information.

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**CTAE-FS-4 Problem Solving and Critical Thinking:** Learners define and solve problems, and use problem-solving and improvement methods and tools.

**CTAE-FS-5 Information Technology Applications:** Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

**CTAE-FS-6 Systems:** Learners understand a variety of organizational structures and functions.

**CTAE-FS-7 Safety, Health and Environment:** Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

**CTAE-FS-8 Leadership and Teamwork:** Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

**CTAE-FS-9 Ethics and Legal Responsibilities:** Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

**CTAE-FS-10 Career Development:** Learners plan and manage academic-career plans and employment relations.

**CTAE-FS-11 Entrepreneurship:** Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.