

**Professional Technical Studies: Architecture & Construction Cluster**  
Design/Pre-Construction Pathway

Strand:

**PT-DPC1**

**Academics**

Students apply English language arts, mathematics, science, and social studies content area skills.

Standard:

**PT-DPC1a:** The student will employ basic methods of data collection and analysis to provide information for projects so as to:

Components:

**PT-DPC1a.1:** access research methods available to formulate project planning and problem solving; and

**PT-DPC1a.2:** provide appropriate precedents for development of a project.

Standard:

**PT-DPC1b:** The student will use appropriate formulas to determine ratios, fractions, and proportion measures so as to:

Components:

**PT-DPC1b.1:** calculate ratios, fractions, and proportion measures; and

**PT-DPC1b.2:** use ratios, fractions, and proportion measures to perform measurement tasks.

Strand:

**PT-DPC2**

**Communication Skills**

Students use information technology to express and interpret information.

Standard:

**PT-DPC2a:** The student will work with potential clients so as to:

Component:

**PT-DPC2a.1:** make a presentation to explain a concept.

Strand:

**PT-DPC3**

**Problem Solving and Critical Thinking**

Students use information technology to define, test, and solve problems.

Standard:

**PT-DPC3a:** The student will identify the relationship between available resources and requirements of a project or problem that needs to be solved in order to accomplish realistic planning so as to:

Components:

**PT-DPC3a.1:** estimate resources/materials required for a specific project/problem—including time management, labor management, job management, and job site obligations—in order to effectively plan;

**PT-DPC3a.2:** use available resources/materials effectively to complete project or resolve a problem; and

**PT-DPC3a.3:** determine alternative solutions for a specific project/problem in order to effectively plan.

Standard:

**PT-DPC3b:** The student will evaluate and adjust plans/schedules to respond to unexpected events and conditions so as to:

Components:

**PT-DPC3b.1:** adjust plans and schedules to meet project needs;

**PT-DPC3b.2:** identify and assess critical situations as they arise to resolve issues; and

**PT-DPC3b.3:** provide a project update to track changes necessitated by unexpected events and conditions.

Standard:	<b>PT-DPC3c:</b> The student will synthesize and report conditions to keep the organization apprised of progress and problems so as to:
Component:	<b>PT-DPC3c.1:</b> provide a project update to keep stakeholders up to date.
Strand:	
<b>PT-DPC4</b>	<b>Information Technology Applications</b> Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.
Standard:	<b>PT-DPC4a:</b> The student will use information technology tools specific to architecture and construction to access, manage, integrate, and create information so as to:
Components:	<b>PT-DPC4a.1:</b> manage personal schedule and contact information; <b>PT-DPC4a.2:</b> create memos and notes; and <b>PT-DPC4a.3:</b> use a CAD system to perform drafting duties.
Standard:	<b>PT-DPC4b:</b> The student will use electronic mail applications so as to:
Components:	<b>PT-DPC4b.1:</b> use e-mail to communicate within and across organizations; and <b>PT-DPC4b.2:</b> use e-mail to share files and documents.
Standard:	<b>PT-DPC4c:</b> The student will use Internet applications so as to:
Components:	<b>PT-DPC4c.1:</b> search for information and resources; and <b>PT-DPC4c.2:</b> access and evaluate Internet resources.
Standard:	<b>PT-DPC4d:</b> The student will use writing and publishing applications so as to:
Component:	<b>PT-DPC4d.1:</b> prepare simple documents and other business communications.
Standard:	<b>PT-DPC4e:</b> The student will use spreadsheet applications so as to:
Components:	<b>PT-DPC4e.1:</b> create a spreadsheet; and <b>PT-DPC4e.2:</b> perform calculations and analysis on data.
Standard:	<b>PT-DPC4f:</b> The student will use computer operations applications so as to:
Components:	<b>PT-DPC4f.1:</b> manage computer operations; and <b>PT-DPC4f.2:</b> manage file storage.
Strand:	
<b>PT-DPC5</b>	<b>Systems</b> Students use an organized set of ideas and principles to explain or interact among structured organizations.
Standard:	<b>PT-DPC5a:</b> The student will integrate structural systems, environmental systems, safety systems, building envelope systems, and building service systems to design modern buildings so as to:
Component:	<b>PT-DPC5a.1:</b> assess building systems and their interrelationships to development design criteria.
Standard:	<b>PT-DPC5b:</b> The student will review traditional project phases and various roles in them to plan for implementation phases within a project so as to:
Component:	<b>PT-DPC5b.1:</b> relate traditional project phases and various roles within them to a current project.

Standard:	<b>PT-DPC5c:</b>	The student will examine the relationship of roles and responsibilities between trades/professions to complete a project/job so as to:
Components:	<b>PT-DPC5c.1:</b>	plan, organize, schedule, and manage a project/job to optimize workflow sequence;
	<b>PT-DPC5c.2:</b>	use time management skills to schedule a project/job; and
	<b>PT-DPC5c.3:</b>	recognize relationships between trades/professions to facilitate smooth workflow.
Standard:	<b>PT-DPC5d:</b>	The student will examine all aspects of the built environment and its systems to complete project planning so as to:
Component:	<b>PT-DPC5d.1:</b>	align and incorporate the built environment and its systems to the complete project.
Standard:	<b>PT-DPC5e:</b>	The student will apply industry standards and practices for quality to ensure quality work so as to:
Components:	<b>PT-DPC5e.1:</b>	identify industry standards and practices in order to incorporate quality into projects; and
	<b>PT-DPC5e.2:</b>	use industry standards and practices to evaluate workmanship.
Strand:	<b>PT-DPC6</b>	<b>Safety, Health, and Environment</b> Students understand the importance of safety, health, environmental, and regulatory compliance in the workplace.
Standard:	<b>PT-DPC6a:</b>	The student will apply the basic principles of environmental impact to enhance project acceptance and quality so as to:
Component:	<b>PT-DPC6a.1:</b>	evaluate and align sustainable design elements to add value to a project.
Standard:	<b>PT-DPC6b:</b>	The student will apply design requirements to accommodate people with varying physical abilities so as to:
Component:	<b>PT-DPC6b.1:</b>	study the “Americans with Disabilities Act” in order to build compliance into project designs.
Strand:	<b>PT-DPC7</b>	<b>Leadership and Teamwork</b> Students collaborate with others to accomplish goals and objectives.
Standard:	<b>PT-DPC7a:</b>	The student will incorporate the diversity of needs, values, and social patterns in project design so as to:
Component:	<b>PT-DPC7a.1:</b>	identify Western, non-Western, national, regional traditions and heritage to express diversity in project design as required.
Standard:	<b>PT-DPC7b:</b>	The student will establish specific goals to manage project assignments in a timely manner so as to:
Components:	<b>PT-DPC7b.1:</b>	establish project goals in order to meet project specifications and deadlines; and
	<b>PT-DPC7b.2:</b>	organize work teams to effectively manage assignments.
Standard:	<b>PT-DPC7c:</b>	The student will work as an individual and as a team member to accomplish assignments so as to:

Components:	<b>PT-DPC7c.1:</b> use human relations skills to work cooperatively with coworkers representing different cultures, genders, and backgrounds;
	<b>PT-DPC7c.2:</b> track team goals to contribute constructively and positively to the team;
	<b>PT-DPC7c.3:</b> match team members to appropriate activities; and
	<b>PT-DPC7c.4:</b> manage personal skills to accomplish assignments.
Standard:	<b>PT-DPC7d:</b> The student will use mentoring skills to inspire others to achieve so as to:
Component:	<b>PT-DPC7d.1:</b> use motivational techniques to enhance performance in others.
Strand:	
<b>PT-DPC8</b>	<b>Architectural Technology Applications</b> Students use computers, networks, drafting and communication technology to access, organize, process, produce, transmit and communicate information.
Standard:	<b>PT-DPC8a:</b> The student will use drawings and computer-generated plans to develop a technical set of drawings so as to:
Component:	<b>PT-DPC8a.1:</b> identify client's needs and wants to develop criteria for a set of technical drawings.
Standard:	<b>PT-DPC8b:</b> The student will employ appropriate representational media to convey essential formal elements so as to:
Components:	<b>PT-DPC8b.1:</b> use two- and three-dimensional drawings to convey graphic information;
	<b>PT-DPC8b.2:</b> reference drawings and sketches to build models; and
	<b>PT-DPC8b.3:</b> use appropriate computer technology to convey graphic information.
Standard:	<b>PT-DPC8c:</b> The student will study principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies to incorporate into project design so as to:
Components:	<b>PT-DPC8c.1:</b> evaluate and select building materials and assemblies to meet project specifications; and
	<b>PT-DPC8c.2:</b> use appropriate combinations of building materials and components to satisfy the requirements of building programs.
Standard:	<b>PT-DPC8d:</b> The student will apply basic organizational, spatial, structural, and construction principles to the design of the interior and exterior spaces so as to:
Component:	<b>PT-DPC8d.1:</b> evaluate and select the most appropriate solution.
Strand:	
<b>PT-DPC9</b>	<b>Employability and Career Development</b> Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.
Standard:	<b>PT-DPC9a:</b> The student will exhibit a positive work ethic to comply with employment requirements so as to:
Component:	<b>PT-DPC9a.1:</b> exhibit behaviors showing reliability and dependability.

Standard:                   **PT-DPC9b:**     The student will recognize requirements for career advancement to plan for continuing education and training so as to:

- Components:           **PT-DPC9b.1:**   identify opportunities for career advancement to formulate career goals;
- PT-DPC9b.2:**   maintain positive interpersonal skills to enhance potential for advancement;
- PT-DPC9b.3:**   pursue education and training opportunities to acquire skills necessary for career advancement;
- PT-DPC9b.4:**   read trade magazines and journals, manufacturers' catalogues, industry publications, and material on Internet sites to keep current on industry trends; and
- PT-DPC9b.5:**   examine the organization and structure of various segments of the industry to prepare for career advancement.

Standard:                   **PT-DPC9c:**     The student will recognize the responsibilities and personal characteristics of a professional craftsperson to develop personal goals for professionalism so as to:

- Components:           **PT-DPC9c.1:**   research workplace/jobsite information to identify appropriate craft responsibilities and personal characteristics; and
- PT-DPC9c.2:**   present a professional image in the workplace/jobsite to enhance career advancement.

Standard:                   **PT-DPC9d:**     The student will maintain a career portfolio to document knowledge, skills, and abilities so as to:

- Components:           **PT-DPC9d.1:**   select educational and work history highlights to create a personal resume;
- PT-DPC9d.2:**   contact professional references to acquire recommendations; and
- PT-DPC9d.3:**   maintain a record of work experiences, licenses, certifications, and education to build a portfolio.