Unit 07: Commercial Interior Design

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 3**
Length: **5 Weeks**
Status: **Published**

Brief Summary of Unit

Introduction: Students will explore the planning, design, and functionality of low-rise commercial buildings, with a focus on strip shopping centers and their associated parking facilities. Emphasis will be placed on the factors that influence site development, including building placement, traffic circulation, signage, accessibility, universal design, zoning requirements, and customer experience. Students will apply architectural design principles and technical drawing skills to develop a strip shopping center that responds to site constraints, user needs, and design criteria while incorporating space for a future interior design project.

Revision Date: July 2026

Essential Questions/Enduring Understandings

Essential Questions:

How can CAD be used to communicate solutions to complex design and engineering challenges?

How can the design loop be applied to develop effective solutions to complex problems?

How can previously acquired knowledge and skills be transferred and applied to new design challenges?

How can CAD be used to communicate engineering solutions to technological problems?

Enduring Understandings:

CAD is used to create technical drawings and design documentation for a variety of audiences. Understanding the needs of the intended audience helps determine the content, level of detail, and presentation of a drawing.

Specific drafting, design, and organizational strategies can be used to improve the efficiency, accuracy, and effectiveness of the design process.

The design loop is an iterative and efficient problem-solving process that supports the development, evaluation, and refinement of successful design solutions.

Building designs are typically the result of an evolving process of research, analysis, testing, and continuous improvement.

Students Will Know/Students Will Be Skilled At

Students will know:

Unit vocabulary, including footprint, bay, steel column, built-up roof, strip mall, strip shopping center, ADA, universal design, compartmentalization, fire-rated construction, and demising wall.

How landscape elements can be used to create visual, environmental, and functional buffers within a site design.

How parking lot layouts can be designed to improve pedestrian safety, accessibility, and traffic circulation.

That parking lot designs must comply with Americans with Disabilities Act (ADA) requirements and accessibility standards.

That single-story commercial buildings must incorporate means of egress systems that meet applicable life-safety requirements.

How setbacks, zoning regulations, and other site development requirements influence the design of buildings and parking facilities.

Students will be skilled at:

Developing plan, section, and elevation drawings for a commercial building and its associated parking facilities.

Applying knowledge of steel building systems, historical precedents, and civil engineering principles to develop building and site plans.

Applying design strategies and problem-solving techniques to address complex architectural and site-planning challenges.

Creating and presenting project work through a professional digital portfolio.

Learning Plan

Preview essential questions and connect them to learning throughout the unit.

Guiding Questions:

- What is interior design, and how does it differ from the design of an office building?
- What types of projects do interior designers typically develop?
- How are the school's hallways designed? What features address fire safety? What materials are used, and in what quantities?
- What life-safety concerns must an interior designer consider?
- What Americans with Disabilities Act (ADA) requirements must an interior designer address?
- What are the primary components and functional areas of a restaurant?
- How are restaurant components similar to cars in a parking lot, shelves in a library, or office cubicles?
- What essential information must an interior designer know about a restaurant before developing a successful design solution?

Design Project:

- Students will modify a general program (design brief) for a restaurant located within their strip mall.
- Students will develop a design solution that includes floor plans and interior elevations.
- Students will identify and specify colors, seating, finishes, furniture, fixtures, and other relevant materials.
- Students will incorporate details addressing ADA compliance, fire sprinklers, and means of egress.
- Students will apply research, design principles, and code requirements to develop a functional, safe, and visually cohesive restaurant environment.

Instructional Activities:

- Lectures and class discussions on drawing requirements, documentation standards, and strategies for successfully completing the design project.
- Lecture and activities focused on the color wheel, color relationships, and the application of color in interior spaces.
- Lectures and class discussions on methods for defining, organizing, and differentiating interior spaces.
- Study of noteworthy and historically significant interiors, including restaurants, lobbies, and offices.
- Class discussions connecting professional interior-design examples to students' own design decisions and project requirements.

Assessment:

- Formative assessments will be conducted throughout the design process to monitor student understanding, provide feedback, and guide revisions.
- Students will participate in ongoing critiques and discussions to evaluate their design decisions and respond to feedback.
- A summative assessment will be completed by both the student and teacher using a rubric specific to the restaurant design problem.
- Students will complete a unit test or quiz assessing key concepts, terminology, design principles, and life-safety considerations.
- Students will complete a writing prompt requiring them to explain and reflect on their design process, decisions, and application of course concepts.

Assessment

Formative Assessment:

Analyze the classroom environment and identify the tools and design elements used to create and define space.

Provide two floor plans for students to practice furniture placement and spatial organization.

Use exit tickets to assess student understanding of key concepts and lessons.

Maintain a sketchbook documenting design ideas, observations, sketches, and the development of design solutions.

Demonstrate knowledge and understanding of interior design vocabulary through accurate and appropriate usage.

Evaluate and apply online tools and resources within AutoCAD to support the design process.

Summative Assessment:

Answer the essential questions to demonstrate understanding of the major concepts addressed throughout the unit.

Students will develop a solution to an interior design problem, such as the design of a kitchen, an entire house, or a room with specific requirements. The completed project will be assessed using rubrics aligned with the design objectives and criteria.

Complete writing prompts that demonstrate understanding of interior design concepts and professional practice. Examples include:

Interior designers have a great deal of freedom in the design process. Provide examples of work they can and cannot perform within their professional scope.

What do systems furniture and kitchen cabinets have in common?

What is the typical career path to becoming an interior designer?

Benchmark Assessment:

Complete a final examination assessing knowledge and understanding of key concepts, vocabulary, design principles, and professional practices presented throughout the unit.

Alternate Assessment:

Conduct research and prepare a presentation demonstrating how the design loop can be used to develop a solution for a particular interior space.

Materials

The CADD LAB-computers equipped with up-to-date AutoCAD and/or other design and drafting software, presentation software, productivity software, a scanner and printers/plotters.

Traditional drafting equipment and supplies-vellum, colored and graphite pencils, pen and ink, drawing boards, tape, scissors, t-squares, triangles etc.

Chip-board, X-acto knives and other model making supplies.

A computer with INTERNET based presentation software (i.e. Prezi and Google Slides) and Microsoft Powerpoint.

3-D printer and supplies

Safety glasses

INTERNET resources and tutorials on how to use CAD software.

Teacher e-board.

SmartBoard use for teacher presentation and interactive lessons

SmartBoard use for student presentations.

Model making materials, dependant on projects that used.

Standards

9.4.12.CI	Creativity and Innovation
9.2.12.CAP	Career Awareness and Planning
TECH.K-12.1.1	Empowered Learner
L.SS.9–10.1	Demonstrate command of the system and structure of the English language when writing or speaking.
	There are strategies to improve one’s professional value and marketability.
TECH.K-12.1.1.a	articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
	Innovative ideas or innovation can lead to career opportunities.
9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
9.2.12.CAP.3	Investigate how continuing education contributes to one's career and personal growth.
9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
TECH.K-12.1.1.c	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
	Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
9.4.12.CT	Critical Thinking and Problem-solving
TECH.K-12.1.2	Digital Citizen
L.KL.9–10.2	Apply knowledge of language to make effective choices for meaning, or style, and to comprehend more fully when reading, writing, speaking or listening.
9.2.12.CAP.5	Assess and modify a personal plan to support current interests and post-secondary plans.

	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
9.2.12.CAP.7	Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
TECH.K-12.1.2.c	demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
TECH.K-12.1.2.d	manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.
L.VL.9–10.3	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, including technical meanings, choosing flexibly from a range of strategies.
TECH.K-12.1.3	Knowledge Constructor
TECH.K-12.1.3.a	plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
TECH.K-12.1.3.c	curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
TECH.K-12.1.3.d	build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
TECH.K-12.1.4	Innovative Designer
TECH.K-12.1.4.a	know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
TECH.K-12.1.4.b	select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
TECH.K-12.1.4.c	develop, test and refine prototypes as part of a cyclical design process.
9.4.12.GCA	Global and Cultural Awareness
9.4.12.GCA.1	Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political. economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
TECH.K-12.1.6	Creative Communicator
TECH.K-12.1.6.a	choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
TECH.K-12.1.6.b	create original works or responsibly repurpose or remix digital resources into new creations.
TECH.K-12.1.6.c	communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
TECH.K-12.1.6.d	publish or present content that customizes the message and medium for their intended audiences.
W.AW.9–10.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient textual and non-textual evidence.
9.4.12.TL	Technology Literacy
	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is

	helpful in selecting the best tool for a given task.
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).
	Engineering design is a complex process in which creativity, content knowledge, research, and analysis are used to address local and global problems. Decisions on trade-offs involve systematic comparisons of all costs and benefits, and final steps that may involve redesigning for optimization.
8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
	Collaborative digital tools can be used to access, record and share different viewpoints and to collect and tabulate the views of groups of people.
8.2.12.ED.2	Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback.
8.2.12.ED.3	Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.
8.2.12.ED.4	Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.
	Engineering design evaluation, a process for determining how well a solution meets requirements, involves systematic comparisons between requirements, specifications, and constraints.
8.2.12.ED.5	Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).
ETW	Effects of Technology on the Natural World
	Development and modification of any technological system needs to take into account how the operation of the system will affect natural resources and ecosystems. Impacts of technological systems on the environment need to be monitored and must inform decision-making. Many technologies have been designed to have a positive impact on the environment and to monitor environmental change over time.
HS-ETS1	Engineering Design
HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
	Asking Questions and Defining Problems
	Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.
ETS1.A	Delimiting Engineering Problems
	Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them.
	Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed through engineering. These global challenges also may have manifestations in local communities.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
	Constructing Explanations and Designing Solutions

ETS1.C	Optimizing the Design Solution

Integrated Accommodation and Modifications, Special Education students, English Language Learners, At-Risk Students, Gifted and Talented students, Career Education, and those with 504s