

Seymour Public Schools Curriculum

Residential Construction

Subject Title

Unit 1

Organization Fundamentals of the Industry

Narrative.....The residential construction industry is one of the biggest sectors of the American economy. According to *Engineering News Record*, a major construction news publication, one out of every six people is involved in construction in some way. The Home Builders Institute reports that home building accounts for 52% of the construction industry. There are opportunities for people to work at all levels in the construction industry, from those who handle the tools and materials on the jobsite to the senior engineers and architects who spend most of their time in offices. Few people spend their entire lives in a single occupation, and even fewer spend their lives working for one employer. Students should be aware of all the opportunities in the construction industry so that they can make career decisions in the future, even if they know what they want to do at this tie.

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Grade: 9-12	<p style="text-align: right;">Subject:</p> <p>Unit 1 - Organization and Working with-in the Industry</p> <ul style="list-style-type: none"> ❖ Organization in the industry ❖ Working with-in the industry
CSDE Standard	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 8 Blueprints and Building Codes <p>Connecticut Standards CT STDS Revised CT TE Content Standards</p> <p>CONTENT STANDARD 1: The Nature & Evolution of Technology</p> <p>CONTENT STANDARD 2: The Impacts of Technology</p> <p>CONTENT STANDARD 3: The Research, Design & Engineering</p> <p>CONTENT STANDARD 4: The Creation & Use of Technology</p> <p>Perkins Standards CTE Standard</p> <ul style="list-style-type: none"> ➤ Standard 3 Career Awareness
Enduring Understanding	

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	<ul style="list-style-type: none"> ➤ One out of every 6 people is involved in the construction industry in some way. By being aware of the opportunities available, students can make educated career choices and decisions for the future. ➤ History is important to the future. ➤ Effective students fully understand the necessary skills required to perform as a skilled craftsman.
Essential Questions	<ul style="list-style-type: none"> ➤ What careers are available in the construction industries? ➤ What role does communication play in the construction industry? ➤ The ability to work as a member of a team requires what skills?
Content Standard:	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 8 Blueprints and Building Codes <ul style="list-style-type: none"> ❖ 8.4 Building Codes and Zoning Regulations <p>Connecticut Standards CT STDS Revised CT TE Content Standards</p> <p>CONTENT STANDARD 1: The Nature & Evolution of Technology <i>Students will understand the nature of technology, how it has evolved and its influence on its own evolution</i></p> <ul style="list-style-type: none"> k-5 a..describe business and industry as producers of products or services. k-5 b. differentiate between natural and human made items; k-5 c. acquire and apply electronically-based information; 6-8 a. describe how societies are organized to produce and distribute goods and services in a structured manner; 6-8 b. explore how people use technology to extends human capabilities, meets needs and solves problems; 9-12 a. research how, social, economic, and political forces influence innovation, invention and adaptation <p>CONTENT STANDARD 2: The Impacts of Technology <i>Students will understand the impact that technology has on the personal, social, cultural, economic, political and environmental aspects of their lives.</i></p> <ul style="list-style-type: none"> k-5 a. recognize the connections between technology and mathematics, science, language arts, social studies, the arts,

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physical education and other school subjects;
6-8a. describe and analyze how technological development affects careers and occupations;

6-8b. Describe how differences in access to technology has positive and negative impacts
9-12 a. identify and explore career opportunities in the areas of technology;
9-12 b. describe and evaluate how society's expectations drive technological development;

CONTENT STANDARD 3: The Research, Design & Engineering

Students will recognize that technology is the result of a creative act, and will be able to apply formal problem-solving strategies to enhance invention and innovation.

6-8 a. differentiate between human needs and wants;
6-8 b. seek relevant information in books, magazines and electronic sources of information.

CONTENT STANDARD 4: The Creation & Use of Technology

Students will know the origins, properties and processing techniques associated with the material building blocks of technology as demonstrated by effective application of the methods producing usable products and by effectively using those products.

k-5 a. identify local businesses and industries as producers of goods or services;
9-12 a. identify and describe methods used in manufacturing products;

CONTENT STANDARD 5: The Future of Technology

Students will demonstrate the ability to take known principles of technological innovation and apply them to hypothetical scenarios effectively.

k-5 a. identify and describe methods used in manufacturing products;

Perkins Standards

Standard 3 Career Awareness

➤ **Students will become aware of the world of work and its function in society, diversity, expectations, trends and requirements.**

- ❖ 3.11-12.1 - Research and identify career opportunities in the area of residential construction.
- ❖ 3.8.2 - Identify high school and post-secondary training selections necessary to prepare for

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	<p style="text-align: center;">particular career choice.</p> <ul style="list-style-type: none"> ❖ 3.8.6 Prepare a list of skills necessary to perform well in a particular career.
<p>Performance Expectations (Student outcomes)</p>	<ul style="list-style-type: none"> ➤ Students will be able to use vocabulary referring directly to the construction industry appropriately. <ul style="list-style-type: none"> ❖ I.E. Apprentice, Contractor, Corporation, Craft, Developer, Journeyman, Laborer, Model code, partnership, Profession, Semi Skilled laborer, Skilled trades, Sole proprietorship, Subcontractor, unskilled labor; Body language, Ethics, Values ➤ Students will be able to explain what is meant by the following categories of construction occupations: <ul style="list-style-type: none"> ❖ Unskilled labor and semiskilled labor ❖ Skilled trades or crafts ❖ Technicians ❖ Design and management ➤ Students will be able compare and contrast what is meant by the following forms of ownership: <ul style="list-style-type: none"> ❖ Sole proprietorship ❖ Partnership ❖ General partnership ❖ Limited liability partnership (LLP) ❖ Corporation ➤ Students will be able to explain the purpose and scope of building codes. ➤ Students will be able to explain what is a trade unions and contractors' association. ➤ Students will be able to explain what is meant by ethics and why they are important in the workplace. ➤ Students will be able to explain the traits of effective teams and why they are important in the construction industry.

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	<ul style="list-style-type: none"> ➤ Students will be able to list the characteristics of good communication skills. ➤ Students will be able to explain what is meant by customer service and lifelong learning. 	
<p>Strategies/Modes</p> <ul style="list-style-type: none"> ➤ Class discussion to assess prior knowledge concerning the organization of the construction industry. ➤ Reading assignments: Textbook <ul style="list-style-type: none"> ❖ p6 - 8 - Construction personnel ❖ p8 - 11 - An overview of Design and construction ... Forms of ownership ❖ p11 - 14 Building Codes... Unions and Contractors' Association ❖ p19 - 21 Ethics and Working on a team ❖ p 21 - 22 Communications ❖ p 22 - 23 Customer Service and Lifelong learning 	<p>Materials/Resources (examples)</p> <ul style="list-style-type: none"> ➤ Text book:“Principles for Construction” by Mark Huth ➤ Supplementary materials. 	<p>Assessments (examples)</p> <ul style="list-style-type: none"> ➤ Observations and conversations with students throughout the lessons. ➤ End of the chapter quiz.

Residential Construction

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Subject Title

Unit 2

Elementary Fundamentals of Engineering, Design and Development

Narrative.....

The residential construction sector will need able workers for the future. Being one of our major sectors of our economy introducing constructions practices and techniques to our students will allow for a skill base to be developed and used if and when advancement in the construction trade is required. This unit is designed to introduce basic engineering practices, design techniques, and simple manufacturing practices to be used throughout the year long course developing quality workforce bound persons for the trades.

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<p>Grade: 10-12</p> <p>25-30 Days</p>	<p style="text-align: right;">Subject:</p> <p>Unit 2: Engineering, Design and Manufacturing Practices</p> <ul style="list-style-type: none"> ➤ Research and Development <ul style="list-style-type: none"> ❖ Product development ➤ Computer Aided Design (Solidworks) <ul style="list-style-type: none"> ❖ Print Layout and Print Reading ❖ Measurement ❖ Material Properties ➤ Machine Usage <ul style="list-style-type: none"> ❖ Machine and Tool Safety ➤ Production Processes <ul style="list-style-type: none"> ❖ Measurements Layout ❖ Assembly Line Process ❖ Quality Control ❖ Assembly Process
<p>CSDE Standard</p>	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ Wood and Lumber ➤ Fasteners ➤ Hand Tools ➤ Portable Power Tools ➤ Stationary Power Tools ➤ Blueprints and Building Codes ➤ Temporary Work Platforms <p>Perkins Standards</p>

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MATHEMATICS STANDARDS

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

Technology Education

PERFORMANCE STANDARDS AND COMPETENCIES

A. Materials and Processes: Define the origins, properties and processing techniques associated with the material building blocks of technology.

B. Technology and the Economy: Understand the link between technology and the economy.

C. Technological Impacts: Understand the impact that technology has on the social, cultural and environmental aspects of life.

D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.

E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.

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	<p>Connecticut Standards CT STDS Revised CT TE Content Standards</p> <p>CONTENT STANDARD 1: The Nature & Evolution of Technology</p> <p>CONTENT STANDARD 2: The Impacts of Technology</p> <p>CONTENT STANDARD 3: The Research, Design & Engineering</p> <p>CONTENT STANDARD 4: The Creation & Use of Technology</p>
<p>Enduring Understanding</p>	<ul style="list-style-type: none"> ➤ Ideas require action to become a reality. ➤ Effective problem solvers work to understand the problem before attempting a solution. ➤ Proper research techniques can be used to solve any problem and create design intent of any product. ➤ Decisions about what to use and how to use it, affects the end result and process to arrive at an end result. ➤ Development practices and different materials usage require different processes and safety considerations. ➤ During the design and development process attention to detail can make ordinary work extraordinary. ➤ Quality management is critical to prototype development and success.
<p>Essential Questions</p>	<ul style="list-style-type: none"> ➤ What is the problem and what is needed to solve it? ➤ How are human products created? ➤ What is the correct process or processes to complete the job? ➤ What role does communication play in product development and in world development? ➤ How is home and workplace safety regulated?

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Content Standard:	<p>Connecticut Introduction to Construction Course Standards</p> <p>Wood and Lumber</p> <ul style="list-style-type: none">1.1 Hardwood and Softwood Properties1.2 Moisture Content1.3 Grade and Size of Lumber1.4 Type and Species of Lumber <p>Fasteners</p> <ul style="list-style-type: none">4.1 Nails, Screws, Bolts and Staples4.3 Adhesives <p>Hand Tools</p> <ul style="list-style-type: none">5.1 Measuring and Marking Tools5.2 Leveling & Layout5.3 Boring Tools <p>Portable Power Tools</p> <ul style="list-style-type: none">6.1 Saws Drills & Drivers6.2 Planes, Routers and Sanders <p>Stationary Power Tools</p> <ul style="list-style-type: none">7.1 Miter and Chop Saw7.2 Table saw7.3 Band Saw7.4 Sanders7.6 Jointer/Planer7.7 Drill Press

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Blueprints and Building Codes

8.2 Building Plans (Floor, section, elevations...)

Temporary Work Platforms

17.4 Safely set-up and use Saw Horses

17.5 Build a Sawhorse & other Construction Aids

Technology Education

Perkins Standards

MATHEMATICS STANDARDS

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

- Compare, locate, label and order real numbers on number lines, scales, coordinate grids and measurement tools
- Select and use an appropriate form of number (integer, fraction, decimal, ratio, percent, exponential, scientific notation, irrational) to solve practical problems involving order, magnitude, measures, labels, locations and scales.

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

- Select and use appropriate methods for computing to solve problem in a variety of contexts

READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

- Students communicate with others to create interpretations of written, oral and visual texts

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- Students select and apply strategies to facilitate word recognition and develop vocabulary in order to comprehend text

Technology Education

CONTENT AREA—

PERFORMANCE STANDARDS AND COMPETENCIES

A. Materials and Processes: Define the origins, properties and processing techniques associated with the material building blocks of technology.

1. Describe physical objects as geometric entities.
2. Use mechanical and electronic measuring devices accurately as required by the design intent.
3. Understand manufacturing processes.
4. Understand architectural processes as required by the design intent.
5. Understand and be able to effectively apply and demonstrate physical, graphic and electronic communication techniques in processing, transmitting, receiving and organizing information.
6. Demonstrate graphic communication skills through sketching.
7. Evaluate and select appropriate methods of communication for a given problem.
8. Send and access information through a network.
9. Express a design of an object as a 3D model.
10. Export and import images/files in a variety of file formats.
12. Define and apply dimensioning standards.
13. Apply material attributes to the model for analysis.
14. Evaluate choice and placement of dimensions, notes and annotations to clearly communicate design intent.
15. Revise a design and update finished drawings appropriately.
17. Identify basic geometric elements (i.e. line, circle, rectangle, sphere, cube, i.e.)
18. Apply basic geometric concepts to building 3D models (i.e. tangent, parallel, concentric, etc.).

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B. Technology and the Economy: Understand the link between technology and the economy.

- 19. Identify current global, social and economic trends.
- 20. Describe the evolution of technological enterprise and its economy, culture, society and environment.
- 23. Define and use quality control.

C. Technological Impacts: Understand the impact that technology has on the social, cultural and environmental aspects of life.

- 25. Employ the input-process-output feedback system model in evaluating technological impacts.
- 27. Discuss societal and industrial responsibilities for using proper hazardous waste disposal and recycling techniques.

D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.

- 28. Identify and explore career opportunities.
- 30. Exhibit and take responsibility for behaviors in both school and work situations.
- 31. Define and demonstrate a personal work ethic.
- 33. Apply organizational and time management skills to classroom and laboratory activities.
- 34. Present information in a clear, concise and appropriate manner.

E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.

- 35. Use research techniques to support design development.
- 37. Develop alternative design solutions to the same problem.
- 38. Use a communication technology to visualize a design idea.
- 40. Present a design idea using multimedia technology.

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42. Fabricate a prototype to support a chosen design.

Connecticut Standards

CT STDS

Revised CT TE Content Standards

CONTENT STANDARD 1: The Nature & Evolution of Technology

Students will understand the nature of technology, how it has evolved and its influence on its own evolution

6-8 b. explore how people use technology to extends human capabilities, meets needs and solves problems;

CONTENT STANDARD 2: The Impacts of Technology

Students will understand the impact that technology has on the personal, social, cultural, economic, political and environmental aspects of their lives.

6-8 c. Use appropriate tools and techniques to gather, analyze and interpret data.

CONTENT STANDARD 3: The Research, Design & Engineering

Students will recognize that technology is the result of a creative act, and will be able to apply formal problem-solving strategies to enhance invention and innovation.

k-5 a. Identify, and investigate a problem;

k-5 b. apply formal strategies for technological problem solving and design

k-5 c. Recognize the importance of diverse viewpoints in technological problem solving

6-8 c. demonstrate effective organizational and time management skills;

6-8 d. develop organizational skills through practical experiences;

6-8 e. Seek relevant information in books, magazines and electronic sources of information.

9-12 a. investigate multiple solutions to a design problem;

9-12 b. use a communication technologies to visualize a design idea;

9-12 c. select appropriate technical processes and fabricate a prototype;

CONTENT STANDARD 4: The Creation & Use of Technology

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	<p><i>Students will know the origins, properties and processing techniques associated with the material building blocks of technology as demonstrated by effective application of the methods producing usable products and by effectively using those products.</i></p> <p><i>k-5 b. use measuring devices accurately;</i> <i>6-8 a. produce models from a variety of materials, using manual and computer-controlled devices.</i> <i>9-12 a. identify and describe methods used in manufacturing products;</i> (refer to frameworks)</p>
<p>Performance Expectations (Student outcomes)</p>	<ul style="list-style-type: none"> ➤ Each student will use the Web to research possible designs of a construction work platform I.E. a portable saw horse and evaluate the information to determine the best design. <ul style="list-style-type: none"> ❖ Web research techniques ➤ Each student will use a computer aided design program (Solidworks) to engineer a designed 3D model and a 2D blueprint for the construction and development of a prototype(s) to be used in the class. <ul style="list-style-type: none"> ❖ Design practices and techniques ➤ Each student will prove to be efficient on machine safety and usage. <ul style="list-style-type: none"> ❖ Machine safety practices ➤ Each student will be required to perform simple manufacturing processes in the development of the prototype. <ul style="list-style-type: none"> ❖ Assembly line practices and machine usage. ➤ Each student will determine the appropriate raw materials to be used in the prototype development. <ul style="list-style-type: none"> ❖ Understand and Identify raw material processes. ❖ Determine the best possible material to be used for the process. ➤ Each student will perform assembly techniques basic to construction practices in the development of the prototype. <ul style="list-style-type: none"> ❖ Hands on assembly practices ❖ Portable Hand Tools ➤ Each Student will perform quality control checks on each part of the prototype in development. <ul style="list-style-type: none"> ❖ Basic measurement techniques. ❖ Use of measuring tools.

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Strategies/Modes (examples)	Materials/Resources (examples)	Assessments (examples)
<ul style="list-style-type: none"> ➤ Classroom discussion to generate a problem and formulate a basic knowledge of the process. ➤ Internet Research to find appropriate design to fit criteria. ➤ Computer Aid Design and refinement of product in a 3D model and a 2D working drawing. ➤ Evaluation of design and completion of material lists and manufacturing process. ➤ Prototype development and quality control check. 	<ul style="list-style-type: none"> ➤ Product Samples ➤ Internet ➤ CAD Program ➤ Information Sheet (handouts) 	<ul style="list-style-type: none"> ➤ Ongoing observation of students while working. ➤ CFA to assess prior knowledge ➤ Unit Exam ➤ Prototype evaluations

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Residential Construction

Subject Title

Unit 3:

Framing Fundamentals

Narrative.....

Unit 3 is designed to introduce simple estimating, wall layout techniques, wall construction techniques and simple wall erection practices. The unit is designed as a building block for future units and will help create wall sections to be used for installation practices. Each student will use a simple formula to determine the necessary stock to solve the requirements, develop a material list, work as a group to construct multiple walls, and layout and erect the walls perpendicular to existing structural walls.

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<p>Grade: 10-12</p> <p>8 -10 Days</p>	<p style="text-align: right;">Subject:</p> <p>Unit 3: Wall Framing</p> <ul style="list-style-type: none"> ➤ Partition and Load Bearing Walls. ➤ Wall Parts and Vocabularies and Nomenclature ➤ Material Calculation <ul style="list-style-type: none"> ❖ # of Studs (Wall Length ' x 12/16 +1) ❖ Stud location (On center Standards) ➤ Plate Layout and Usage <ul style="list-style-type: none"> ❖ Top Plate ❖ Upper and Lower Plate ❖ 15 ¼ measurement 16 "on center offset. ➤ Wall construction practices <ul style="list-style-type: none"> ❖ Fasteners ❖ Drivers and removal tools ❖ Corner construction ❖ Window and Door Frame ❖ Jack stud ❖ Header layout ❖ Cripple Studs ➤ Perpendicular Layout <ul style="list-style-type: none"> ❖ 3-4-5 Triangle
<p>CSDE Standard</p>	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 2 Engineered Products, Panels & Sheet Goods ➤ 4 Fasteners ➤ 5 Hand tools ➤ 6 Portable Power Tools ➤ 7 Stationary Tools ➤ 8 Blueprints and Building Codes

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- 12 Framing Systems
- 13 Wood Floor Framing Layout & Construction
- 14 Wall Framing with Wood
- 15 Non-structural Steel Wall Framing
- 16 Ceiling Framing in Wood
- 17 Temporary Work Platforms

Connecticut Standards

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***Revised* CT TE Content Standards**

CONTENT STANDARD 3: The Research, Design & Engineering
CONTENT STANDARD 4: The Creation & Use of Technology

Perkins Standards

MATHEMATICS STANDARDS

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

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Technology Education

PERFORMANCE STANDARDS AND COMPETENCIES

- A. Materials and Processes: Define the origins, properties and processing techniques associated with the material building blocks of technology.**
- B. Technology and the Economy: Understand the link between technology and the economy.**
- C. Technological Impacts: Understand the impact that technology has on the social, cultural and environmental aspects of life.**
- D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.**
- E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.**

Pre-Engineering Technology

- C. Manufacturing: Identify the major components of manufacturing processes including measurement systems, tools and instruments to ensure quality control.**
- D. Materials: Identify, compare, select and test the appropriate materials used in pre-engineering.**

Enduring Understanding

- Products are a result of human input, processes and feedback.
- Different materials need different processes and safety considerations.
- Technological understanding requires learning and doing.
- Needs of society dictates expectation and job expectations.
- Change drives innovation and need dictates outcome.

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Essential Questions	<ul style="list-style-type: none">➤ What is the right process for the job?➤ What does quality work look like?➤ How does innovation affect the quality of life and the ease of production?➤ How does what I learn today connect to what was learned yesterday and what I will learn in the future?➤ What role does communication play in efficiency?➤ How does the actions of individuals affect overall product Quality?
Content Standard:	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none">➤ Engineered Products, Panels & Sheet Goods<ul style="list-style-type: none">❖ 2.1 Plywood❖ 2.5 Drywall, wallboard, cement board ➤ 4 Fasteners<ul style="list-style-type: none">❖ 4.1 Nails, screws, bolts, staples❖ 4.2 Anchors, ties & connectors ➤ 5 Hand tools<ul style="list-style-type: none">❖ 5.1 Measuring and marking tools❖ 5.2 Leveling & layout tools❖ 5.4 Fastening and dismantling tools ➤ 6 Portable Power Tools<ul style="list-style-type: none">❖ 6.1 Saws, drills and drivers❖ 6.3 Fastening tools (power-actuated, etc.)❖ ➤ 7 Stationary Tools<ul style="list-style-type: none">❖ 7.1 Miter & chop saws

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- **8 Blueprints and Building Codes**
 - ❖ 8.2 Building plans (floor plans, sections, elevations)
- **12 Framing Systems**
 - ❖ 12.1 Identify metal/wood framing components
 - ❖ 12.2 Platform Frame Construction
- **13 Wood Floor Framing Layout & Construction**
 - ❖ 13.1 Check square & level of foundation, subsurface
- **14 Wall Framing with Wood**
 - ❖ 14.1 Identify load-and non-load-bearing walls & partitions
 - ❖ 14.2 Lay out walls on floor deck or foundation
 - ❖ 14.3 Lay out wall framing detail on wall plates
 - ❖ 14.4 Cut wall plates
 - ❖ 14.5 Calculate lengths of wall components
 - ❖ 14.6 Cut studs, headers, jacks, rough sills and cripples
 - ❖ 14.7 Assemble header, corner and tee posts
 - ❖ 14.8 Frame door opening
 - ❖ 14.9 Frame window opening
 - ❖ 14.10 Assemble wall section
 - ❖ 14.14 Install top plate (cap plate)
 - ❖ 14.17 Install exterior wall sheathing
 - ❖ 14.18 Raise and anchor wall section
 - ❖ 14.19 Plumb, align and brace wall section
- **17 Temporary Work Platforms**
 - ❖ 17.3 Safely erect and use ladders
 - ❖ 17.4 Safely set up and use saw horses

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Revised CT TE Content Standards

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CONTENT STANDARD 3: The Research, Design & Engineering

Students will recognize that technology is the result of a creative act, and will be able to apply formal problem-solving strategies to enhance invention and innovation.

- k-5 a. Identify, and investigate a problem;
- k-5 b. apply formal strategies for technological problem solving and design
- k-5 c. recognize the importance of diverse viewpoints in technological problem solving
- k-5 d. apply appropriate vocabulary in the presentation of technological solutions;
- 6-8 a. differentiate between human needs and wants;
- 6-8 c. demonstrate effective organizational and time management skills;
- 6-8 d. develop organizational skills through practical experiences;
- 6-8 e. seek relevant information in books, magazines and electronic sources of information.
- 9-12 a. investigate multiple solutions to a design problem;
- 9-12 b. use a communication technologies to visualize a design idea;
- 9-12 c. select appropriate technical processes and fabricate a prototype;

CONTENT STANDARD 4: The Creation & Use of Technology

Students will know the origins, properties and processing techniques associated with the material building blocks of technology as demonstrated by effective application of the methods producing usable products and by effectively using those products.

- k-5 b. use measuring devices accurately;
- 6-8 a. produce models from a variety of materials, using manual and computer-controlled devices.
- 9-12 a. identify and describe methods used in manufacturing products;

Technology Education
Perkins Standards

MATHEMATICS STANDARDS

Seymour Public Schools Curriculum

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

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- Select and use an appropriate form of number (integer, fraction, decimal, ratio, percent, exponential, scientific notation, irrational) to solve practical problems involving order, magnitude, measures, labels, locations and scales.

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

- Select and use appropriate methods for computing to solve problem in a variety of contexts

READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

- Students communicate with others to create interpretations of written, oral and visual texts
- Students select and apply strategies to facilitate word recognition and develop vocabulary in order to comprehend text

Technology Education

CONTENT AREA—

PERFORMANCE STANDARDS AND COMPETENCIES

A. Materials and Processes: Define the origins, properties and processing techniques associated with the material building blocks of technology.

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1. Describe physical objects as geometric entities.
2. Use mechanical and electronic measuring devices accurately as required by the design intent.
3. Understand manufacturing processes.
4. Understand architectural processes as required by the design intent.
5. Understand and be able to effectively apply and demonstrate physical, graphic and electronic communication techniques in processing, transmitting, receiving and organizing information.
7. Evaluate and select appropriate methods of communication for a given problem.
10. Export and import images/files in a variety of file formats.
15. Revise a design and update finished drawings appropriately.

B. Technology and the Economy: Understand the link between technology and the economy.

19. Identify current global, social and economic trends.
20. Describe the evolution of technological enterprise and its economy, culture, society and environment.
23. Define and use quality control.

C. Technological Impacts: Understand the impact that technology has on the social, cultural and environmental aspects of life.

25. Employ the input-process-output feedback system model in evaluating technological impacts.
27. Discuss societal and industrial responsibilities for using proper hazardous waste disposal and recycling techniques.

D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.

28. Identify and explore career opportunities.
30. Exhibit and take responsibility for behaviors in both school and work situations.
31. Define and demonstrate a personal work ethic.
33. Apply organizational and time management skills to classroom and laboratory activities.

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34. Present information in a clear, concise and appropriate manner.

E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.

35. Use research techniques to support design development.

37. Develop alternative design solutions to the same problem.

38. Use a communication technology to visualize a design idea.

40. Present a design idea using multimedia technology.

42. Fabricate a prototype to support a chosen design.

CONTENT AREA—

Pre-Engineering Technology

C. Manufacturing: Identify the major components of manufacturing processes including measurement systems, tools and instruments to ensure quality control.

16. Identify and use common hand tools/fasteners.

18. Explain quality control in manufacturing.

19. Measure with precision measurement tools and instruments.

D. Materials: Identify, compare, select and test the appropriate materials used in pre-engineering.

21. Compare and contrast physical properties of materials.

22. Select correct materials for specific functions.

(refer to frameworks)

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Performance Expectations (Student outcomes)	<ul style="list-style-type: none"> ➤ Each student will learn and use simple estimating techniques to solve problems in real life problems. ➤ Each student will identify structural wall components used in residential construction. ➤ Each student will develop and use wall layout practices to solve given problems ➤ Each student will develop and use safety practices to properly solve problems. ➤ Each student will be required to perform manufacturing techniques related to wall construction practices. ➤ Each student will learn and use proper vocabulary based on estimating, wall development and construction practices. ➤ Each student will determine and use proper fasteners and driving tools to solve given problem. ➤ Each student will use temporary work platforms safely to solve construction problems. ➤ Each student will take part in wall erection practices in a safe real life setting. 		
<p style="text-align: center;">Strategies/Modes (examples)</p> <ul style="list-style-type: none"> ➤ Class discussion to assess prior knowledge concerning the organization of the construction industry. ➤ Classroom discussion to generate a problem and formulate a basic knowledge of needed processes. ➤ Evaluation of design and completion of material lists for manufacturing process. ➤ Actual hands on activity 	<p style="text-align: center;">Materials/Resources (examples)</p> <ul style="list-style-type: none"> ➤ Textbook: “Principles for Construction” by Mark Huth ➤ Supplementary materials. ➤ Product Samples ➤ Information Sheet (handouts) 	<p style="text-align: center;">Assessments (examples)</p> <ul style="list-style-type: none"> ➤ Ongoing observation of students while working. ➤ Estimation sheets and identification handouts. ➤ CFA to assess prior knowledge ➤ Unit Exam ➤ Prototype evaluations 	

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Residential Construction

Subject Title

Unit: 4

Residential Construction Practices

Narrative.....Unit 4 Residential Construction practice provides students with a working understanding of the key elements associated with designing, planning, and constructing modular units in the lab. Students learn major concepts through hands-on activities, using contemporary construction tools and materials. Activities involve groups of students constructing modular units within the lab setting. Emphasis is placed on

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student understanding of the major concepts of construction technology as well as interrelationships of management and production. The content and activities reflect the Connecticut Career Clusters of *Construction: Technologies and Design Technologies: Manufacturing, Communications and Repair*.

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Grade: 10 – 12 60 Days	<div style="text-align: right; margin-bottom: 10px;">Subject:</div> <p>Unit 4: Residential Construction Practices</p> <p>Modules of Study:</p> <ul style="list-style-type: none"> ➤ Window and Door Installation <ul style="list-style-type: none"> ❖ Hardware installation 10 Days ➤ Siding Installation <ul style="list-style-type: none"> ❖ Vinyl ❖ Clapboard ❖ Shake 20 Days ➤ Drywall Installation <ul style="list-style-type: none"> ❖ Drywall ❖ Paper Tape ❖ Joint Compound ❖ Corner Bead 15 Days ➤ Plumbing Installation <ul style="list-style-type: none"> ❖ Shower Pipes ❖ Toilet Pipes ❖ Sink Pipes 10 Days ➤ Electrical Installation <ul style="list-style-type: none"> ❖ Multiple Outlets ❖ Switches ❖ Light 10 Days ➤ Roofing <ul style="list-style-type: none"> ❖ Ice/Water ❖ Underlayment ❖ Shingle ❖ Flashing 10 Days
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	<ul style="list-style-type: none"> ➤ Metal Framing <ul style="list-style-type: none"> ❖ Studs ❖ Track ❖ Jack Studs ❖ Headers ❖ Corner Studs <p style="text-align: right; margin-right: 20px;">5 Days</p> <ul style="list-style-type: none"> ➤ Floor Framing and Finishes <ul style="list-style-type: none"> ❖ Box Header ❖ Floor Joists ❖ Strap Joist ❖ Sub Floor ❖ Finished Floor Prep ❖ Tiling <p style="text-align: right; margin-right: 20px;">15 Days</p>
<p>CSDE Standard</p>	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 2. Engineered Products, Panels & Sheet Goods ➤ 3. Engineered structural Components ➤ 4. Fasteners ➤ 5. Hand tools ➤ 6. Portable Power Tools ➤ 7. Stationary Tools ➤ 15. Non-structural Steel Wall Framing ➤ 17. Temporary Work Platforms ➤ 19. Roof Framing ➤ 20. Roofing ➤ 23. Siding ➤ 24. Door and window Installation <p>Technology Education</p>

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Perkins Standards

MATHEMATICS STANDARDS

- 1) **EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS**
- 3) **DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.**

READING STANDARDS

- 6) **MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE**

Technology Education

CONTENT AREA—

COMPUTER AIDED DRAFTING AND DESIGN

- D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.**
- E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.**

Pre-Engineering Technology

- C. Manufacturing: Identify the major components of manufacturing processes including measurement systems, tools and instruments to ensure quality control.**
- D. Materials: Identify, compare, select and test the appropriate materials used in pre-engineering.**

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<p>Enduring Understanding</p>	<ul style="list-style-type: none"> ➤ Different materials require different processes and safety considerations. ➤ Safety habits are learned behaviors. ➤ Practice makes permanence: make sure you're building good habits. ➤ Applying knowledge leads to understanding. ➤ Effective problem solvers work to understand the problem before attempting a solution. ➤ Applying knowledge leads to understanding.
<p>Essential Questions</p>	<ul style="list-style-type: none"> ➤ What construction methods and techniques are used by contractors in the construction of a residence? ➤ What are the specialty fields within carpentry and how are they incorporated into the total design? ➤ What sequential steps are performed in the constructing a residence? ➤ What is the right process for the job? ➤ What does quality work look like? ➤ How do regulatory agencies influence home and workplace safety? ➤ What role does communication play in efficiency?
<p>Content Standard:</p>	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 2. Engineered Products, Panels & Sheet Goods <ul style="list-style-type: none"> ❖ 2.1 Plywood ❖ 2.2 OSB ❖ 2.5 Drywall, wallboard, cement board ❖ 2.11 Metal framing products ➤ 3. Engineered Structural Panels <ul style="list-style-type: none"> ❖ 3.4 Wood floor and roof trusses ➤ 4. Fasteners <ul style="list-style-type: none"> ❖ 4.1 Nails, screws, bolts, staples ➤ 4.3 Adhesives

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- **5. Hand Tools**
 - ❖ 5.1 Measuring and marking tools
 - ❖ 5.2 Leveling and layout tools
 - ❖ 5.4 Fastening and dismantling tools
- **6. Portable Power Tools**
 - ❖ 6.3 Fastening tools pneumatic nailers
- **7. Stationary Tools**
 - ❖ 7.1 Miter and chop saws
 - ❖ 7.2 Table saws

- **15 Non-structural Steel Wall Framing**
 - ❖ 15.2 Cut and install tracks
 - ❖ 15.3 Layout wall framing details on tracks
 - ❖ 15.4 Calculate lengths of wall components
 - ❖ 15.5 Cut studs, jacks, rough sills and cripples
 - ❖ 15.6 Assemble head piece and king stud
 - ❖ 15.7 Install studs
- **17. Temporary Work Platforms**
 - ❖ 17.3 Safely erect and use ladders
 - ❖ 17.4 Safely set up and use saw horses
- **19. Roof Framing**
 - ❖ 19.16 Install dry-in (flooring felt, ice and water shield)
- **20. Roofing**
 - ❖ 20.1 Apply underlayment or substrate
 - ❖ 20.2 Install flashing
 - ❖ 20.3 Apply shingles & roll roofing

- **23. Siding**
 - ❖ 23.1 Apply underlayment (building wrapping)

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- ❖ 23.2 Install window and door flashing (drip cap)
- ❖ 23.4 Install board and batten siding
- ❖ 23.8 Install lap siding
- ❖ 23.9 Install shake or shingle siding
- ❖ 23.13 Install vinyl and metal siding and accessories
- **Door and Window Installation**
 - ❖ 24.2 Install pre-hung doors
 - ❖ 24.3 Install locksets, hardware & weather-stripping

Technology Education **Perkins Standards**

MATHEMATICS STANDARDS

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

- Compare, locate, label and order real numbers on number lines, scales, coordinate grids and measurement tools
- Select and use an appropriate form of number (integer, fraction, decimal, ratio, percent, exponential, scientific notation, irrational) to solve practical problems involving order, magnitude, measures, labels, locations and scales.

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

- Select and use appropriate methods for computing to solve problem in a variety of contexts

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READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

- Students communicate with others to create interpretations of written, oral and visual texts
- Students select and apply strategies to facilitate word recognition and develop vocabulary in order to comprehend text
- Students use appropriate strategies before, during and after reading in order to construct meaning

Technology Education

CONTENT AREA—

COMPUTER AIDED DRAFTING AND DESIGN

D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.

28. Identify and explore career opportunities.
29. Explain the need to be a lifelong learner.
30. Exhibit and take responsibility for behaviors in both school and work situations.
31. Define and demonstrate a personal work ethic.
32. Identify future labor market trends.
33. Apply organizational and time management skills to classroom and laboratory activities.
34. Present information in a clear, concise and appropriate manner.

E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.

35. Use research techniques to support design development.
37. Develop alternative design solutions to the same problem.

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	<p>38. Use a communication technology to visualize a design idea. 42. Fabricate a prototype to support a chosen design</p> <p>CONTENT AREA— Pre-Engineering Technology</p> <p>C. Manufacturing: Identify the major components of manufacturing processes including measurement systems, tools and instruments to ensure quality control.</p> <p>16. Identify and use common hand tools/fasteners. 18. Explain quality control in manufacturing. 19. Measure with precision measurement tools and instruments.</p> <p>D. Materials: Identify, compare, select and test the appropriate materials used in pre-engineering.</p> <p>21. Compare and contrast physical properties of materials. 22. Select correct materials for specific functions.</p>
<p>Performance Expectations (Student outcomes)</p>	<ul style="list-style-type: none"> ➤ Students will relate construction technology to the broader context of the industry and technology. ➤ Students will understand, and perform selected production and servicing practices as they apply to construction products. ➤ Students will appreciate and have some understanding of constructed projects and the tools and materials utilized in their construction. ➤ Students will develop and understanding skill used and needed along with the tools and materials associated with construction technologies. ➤ Students will develop an awareness of careers in construction technologies. ➤ Students will be able to develop responsible and safe work attitudes and the ability to function as a member of a group.

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<p>Delivery Method ➤</p>		
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- ❖ Two to four students per group
- ❖ Students will work as a team to complete each unit.



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<p>topics</p> <ul style="list-style-type: none">➤ Small group discussions and demonstrations➤ Individual help as needed (differentiated lessons)➤ Hands on fabrication by groups using cooperation and teamwork		
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Residential Construction

Subject Title

Unit 5:

Fabrication Practices and Techniques

Narrative.....

Unit 5 is designed to introduce consumer needs, state and town code requirements, job site restrictions, product estimating, blueprint reading, and residential platform and fabrication practices. The unit will be a hands on activity culminating past lab units practices and future needs. The activity will be the production of a shed purchased by an outside customer. The shed will be fabricated in the lab and erected on a job site at the customer's

Subject or course name 46

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home or business. Each student will experience customer needs, plan adaptation, code requirements, material estimation and product fabrication. Platform construction and prefabrication processes will be used to solve real live residential construction problems and situations dealt buy contractors everyday with-in the related fields.

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Grade: 10-12 60-70 Days	Subject: Unit 5: Fabrication Practices and Technique <ul style="list-style-type: none">➤ Customer Expectations<ul style="list-style-type: none">❖ Plan Development and Modifications➤ Material Estimating and Ordering<ul style="list-style-type: none">❖ Framing Materials❖ Plywood Sheathing❖ Finishing Materials➤ State and Town Building Codes<ul style="list-style-type: none">❖ Permit❖ Site Plan➤ Floor Systems<ul style="list-style-type: none">❖ Box Header❖ Joists❖ Decking❖ Fasteners➤ Wall Systems<ul style="list-style-type: none">❖ Studs❖ Corner Studs❖ Jack and Cripple Studs❖ Headers❖ Rake Edge and Ladders❖ Fasteners➤ Doors and Windows Construction and Installation➤ Exterior Finishing Material➤ Roof System<ul style="list-style-type: none">❖ Ridge Board❖ Rafters
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	<ul style="list-style-type: none"> ❖ Fascia Boards ❖ Soffit Boards ❖ Plywood Sheathing ❖ 15lb Felt Paper ❖ Asphalt Shingles ❖ Fasteners
<p>CSDE Standard</p>	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 1 Wood Lumber ➤ 2 Engineered Products, Panels & Sheet Goods ➤ 3 Engineered Structural Components ➤ 4 Fasteners ➤ 5 Hand tools ➤ 6 Portable Power Tools ➤ 7 Stationary Tools ➤ 8 Blueprints and Building Codes ➤ 12 Framing Systems ➤ 13 Wood Floor Framing Layout & Construction ➤ 14 Wall Framing with Wood ➤ 17 Temporary Work Platforms ➤ 19 Roof Framing ➤ 20 Roofing ➤ 23 Siding ➤ 24 Door and Window Installation <p>Connecticut Standards CT STDS Revised CT TE Content Standards CONTENT STANDARD 3: The Research, Design & Engineering</p>

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CONTENT STANDARD 4: The Creation & Use of Technology

Perkins Standards

MATHEMATICS STANDARDS

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

Technology Education

PERFORMANCE STANDARDS AND COMPETENCIES

A. Materials and Processes: Define the origins, properties and processing techniques associated with the material building blocks of technology.

B. Technology and the Economy: Understand the link between technology and the economy.

C. Technological Impacts: Understand the impact that technology has on the social, cultural and environmental aspects of life.

D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.

E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.

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Enduring Understanding	<p>Measure twice cut once.</p> <ul style="list-style-type: none"> ➤ Different materials require different processes and safety concerns ➤ Safety habits are a learned behavior ➤ Practice makes permanence; make sure you are building good habits ➤ Applying knowledge leads to understanding. ➤ Effective problem solvers work to understand the problem before attempting a solution.
Essential Questions	<ul style="list-style-type: none"> ➤ What is the right process for the job? ➤ What does quality work look like? ➤ What role does communication play in efficiency? ➤ What sequential steps are performed in constructing a residence? ➤ How does the technological past influence the present and guide the future? ➤ How does society influence construction and development? ➤ How do regulatory agencies influence home and workplace decisions? ➤ How does the action of an individual affect overall product quality?
Content Standard:	<p>Connecticut Introduction to Construction Course Standards</p> <ul style="list-style-type: none"> ➤ 1 Wood and Lumber <ul style="list-style-type: none"> ❖ Hardwood and softwood properties ❖ 1.3 Grades and sizes of Lumber ➤ 2 Engineered Products, Panels & Sheet Goods <ul style="list-style-type: none"> ❖ 2.1 Plywood ❖ 2.9 Waterproofing membranes ❖ 2.11 Metal framing products

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- **3 Engineered structural Components**
 - ❖ 3.1 Laminated veneer lumber
- **4 Fasteners**
 - ❖ 4.1 Nails, screws, bolts, staples
 - ❖ 4.2 Anchors, ties & connectors
 - ❖ 4.3 Adhesives
- **5 Hand tools**
 - ❖ 5.1 Measuring and marking tools
 - ❖ 5.2 Leveling & layout tools
 - ❖ 5.3 Boring and cutting tools
 - ❖ 5.4 Fastening and dismantling tools
- **6 Portable Power Tools**
 - ❖ 6.1 Saws, drills and drivers
 - ❖ 6.2 Planes routers & sanders
 - ❖ 6.3 Fastening tools (power-actuated, etc.)
- **7 Stationary Tools**
 - ❖ 7.1 Miter & chop saws
 - ❖ Table saws
 - ❖ Band saws
 - ❖ Sanders
 - ❖ Joiner/Plane
 - ❖ Drill Press
- **8 Blueprints and Building Codes**
 - ❖ 8.2 Building plans (floor plans, sections, elevations)
 - ❖ 8.4 Building Codes and Zoning Regulations

- **12 Framing Systems**
 - ❖ 12.1 Identify metal/wood framing components
 - ❖ 12.2 Platform Frame Construction
- **13 Wood Floor Framing Layout & Construction**

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- ❖ 13.1 Check square & level of foundation, subsurface
- ❖ 13.10 Install sub flooring
- **14 Wall Framing with Wood**
 - ❖ 14.1 Identify load-and non-load-bearing walls & partitions
 - ❖ 14.2 Lay out walls on floor deck or foundation
 - ❖ 14.3 Lay out wall framing detail on wall plates
 - ❖ 14.4 Cut wall plates
 - ❖ 14.5 Calculate lengths of wall components
 - ❖ 14.6 Cut studs, headers, jacks, rough sills and cripples
 - ❖ 14.7 Assemble header, corner and tee posts
 - ❖ 14.8 Frame door opening
 - ❖ 14.9 Frame window opening
 - ❖ 14.10 Assemble wall section
 - ❖ 14.14 Install top plate (cap plate)
 - ❖ 14.17 Install exterior wall sheathing
 - ❖ 14.18 Raise and anchor wall section
 - ❖ 14.19 Plumb, align and brace wall section
 - ❖ 14.20 Install fur downs, soffits, bulkheads, chases
- **17 Temporary Work Platforms**
 - ❖ 17.3 Safely erect and use ladders
 - ❖ 17.4 Safely set up and use saw horses

- **19 Roof Framing**
 - ❖ 19.1 Layout roof framing details on cap plate & ridge
 - ❖ 19.2 Layout & cut common rafters
 - ❖ 19.4 Install ridge board and rafters
 - ❖ 19.5 Install collar beams(rafter ties)
 - ❖ 19.9 Install sub-fascia

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- ❖ 19.10 Frame Gable End
- ❖ 19.13 Install roof sheathing (include nailing zones)
- ❖ 19.15 Provide for proper roof ventilation
- ❖ 19.16 Install dry-in (roofing felt, ice and water shield)
- **20 Roofing**
 - ❖ 20.1 Apply underlayment or substrate
 - ❖ 20.2 Install flashing
 - ❖ 20.3 Apply shingles & roll roofing
 - ❖ 20.4 Install ridge cap
- **23 Siding**
 - ❖ 23.10 Install plywood siding

Connecticut Standards

CT STDS

Revised CT TE Content Standards

CONTENT STANDARD 3: The Research, Design & Engineering

Students will recognize that technology is the result of a creative act, and will be able to apply formal problem-solving strategies to enhance invention and innovation.

- k-5 a. Identify, and investigate a problem;
- k-5 b. apply formal strategies for technological problem solving and design
- k-5 c. recognize the importance of diverse viewpoints in technological problem solving
- k-5 d. apply appropriate vocabulary in the presentation of technological solutions;
- 6-8 a. differentiate between human needs and wants;
- 6-8 c. demonstrate effective organizational and time management skills;
- 6-8 d. develop organizational skills through practical experiences;
- 6-8 e. seek relevant information in books, magazines and electronic sources of information.
- 9-12 a. investigate multiple solutions to a design problem;
- 9-12 b. use a communication technologies to visualize a design idea;
- 9-12 c. select appropriate technical processes and fabricate a prototype;

CONTENT STANDARD 4: The Creation & Use of Technology

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Students will know the origins, properties and processing techniques associated with the material building blocks of technology as demonstrated by effective application of the methods producing usable products and by effectively using those products.

k-5 b. use measuring devices accurately;

6-8 a. produce models from a variety of materials, using manual and computer-controlled devices.

9-12 a. identify and describe methods used in manufacturing products;

Technology Education

Perkins Standards

MATHEMATICS STANDARDS

1) EXTEND THE UNDERSTANDING OF NUMBER TO INCLUDE INTEGERS, RATIONAL NUMBERS AND REAL NUMBERS

- Compare, locate, label and order real numbers on number lines, scales, coordinate grids and measurement tools
- Select and use an appropriate form of number (integer, fraction, decimal, ratio, percent, exponential, scientific notation, irrational) to solve practical problems involving order, magnitude, measures, labels, locations and scales.

3) DEVELOP STRATEGIES FOR COMPUTATION AND ESTIMATION USING PROPERTIES OF NUMBER SYSTEMS TO SOLVE PROBLEMS.

- Select and use appropriate methods for computing to solve problem in a variety of contexts

READING STANDARDS

6) MAKE CONNECTIONS BETWEEN THE TEXT AND OUTSIDE EXPERIENCES AND KNOWLEDGE

- Students communicate with others to create interpretations of written, oral and visual texts
- Students select and apply strategies to facilitate word recognition and develop vocabulary in order to comprehend text

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Technology Education

CONTENT AREA—

PERFORMANCE STANDARDS AND COMPETENCIES

A. Materials and Processes: Define the origins, properties and processing techniques associated with the material building blocks of technology.

1. Describe physical objects as geometric entities.
2. Use mechanical and electronic measuring devices accurately as required by the design intent.
3. Understand manufacturing processes.
4. Understand architectural processes as required by the design intent.
5. Understand and be able to effectively apply and demonstrate physical, graphic and electronic communication techniques in processing, transmitting, receiving and organizing information.
7. Evaluate and select appropriate methods of communication for a given problem.
10. Export and import images/files in a variety of file formats.
15. Revise a design and update finished drawings appropriately.

B. Technology and the Economy: Understand the link between technology and the economy.

19. Identify current global, social and economic trends.
20. Describe the evolution of technological enterprise and its economy, culture, society and environment.
23. Define and use quality control.

C. Technological Impacts: Understand the impact that technology has on the social, cultural and environmental aspects of life.

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	<p>25. Employ the input-process-output feedback system model in evaluating technological impacts.</p> <p>27. Discuss societal and industrial responsibilities for using proper hazardous waste disposal and recycling techniques.</p> <p>D. Career Awareness and Teambuilding: Become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations.</p> <p>28. Identify and explore career opportunities.</p> <p>30. Exhibit and take responsibility for behaviors in both school and work situations.</p> <p>31. Define and demonstrate a personal work ethic.</p> <p>33. Apply organizational and time management skills to classroom and laboratory activities.</p> <p>34. Present information in a clear, concise and appropriate manner.</p> <p>E. Problem Solving/Research and Development: Apply disciplined problem solving strategies to enhance invention and innovation including the engineering design process to achieve desired outcomes across all technology content areas.</p> <p>35. Use research techniques to support design development.</p> <p>37. Develop alternative design solutions to the same problem.</p> <p>38. Use a communication technology to visualize a design idea.</p> <p>40. Present a design idea using multimedia technology.</p> <p>42. Fabricate a prototype to support a chosen design.</p> <p style="text-align: center;">(refer to frameworks)</p>
<p>Performance Expectations (Student outcomes)</p>	<ul style="list-style-type: none"> ➤ Students will relate construction technology to the broader context of the industry and technology. ➤ Students will understand, and perform selected production and servicing practices as ➤ they apply to construction products. ➤ Students will appreciate and have some understanding of constructed projects and the tools and materials utilized in their construction.

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	<ul style="list-style-type: none"> ➤ ➤ with construction technologies. ➤ ➤ ➤ a group. 	<p>Students will develop and understanding skill used and needed along with the tools and materials associated</p> <p>Students will develop an awareness of careers in construction technologies.</p> <p>Students will be able to develop responsible and safe work attitudes and the ability to function as a member of</p>
<p>Strategies/Modes (examples)</p> <p>Project and Activities</p> <p>Units:</p> <ul style="list-style-type: none"> ➤ 	<p>Materials/Resources (examples)</p> <p>Construction lab with the following stationary power tools:</p> <ul style="list-style-type: none"> ➤ Table saw, Radial Arm saw, Power miter saw <p>Portable Power Tools:</p> <ul style="list-style-type: none"> ➤ Pneumatic nailers, jig saw, Cordless and corded electric drills, circular saws <p>Hand tools:</p> <ul style="list-style-type: none"> ➤ hammers, pry bars, measuring tools, fasteners(nails and screws), layout tools(squares, levels, chalk line) <p>Materials:</p> <ul style="list-style-type: none"> ➤ Fasteners – nails and screws ➤ Framing lumber ➤ Roofing felt, shingles, flashing ➤ Sheathing Materials 	<p>Assessments (examples)</p> <ul style="list-style-type: none"> ➤ Ongoing observation and feedback to students as they work. ➤ Feedback concerning safe work practices and techniques as students are working. ➤ Evaluation of the finished product comparing the work to industry standards. <p>Students write an essay to reflect on what occurred during construction and what modifications would the student make if they had to do the job again.</p>

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<p>topics</p> <ul style="list-style-type: none">➤ Small group discussions and demonstrations➤ Individual help as needed (differentiated lessons)➤ Hands on fabrication by groups using cooperation and teamwork		
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