

Career & Technical Education (CTE) Standards Revision Project

Cluster: Architecture & Construction

Pathways: Design & Pre-Construction, Construction, Maintenance /Operations

Architecture & Construction Cluster Overview

The Architecture & Construction cluster prepares students for careers in designing, planning, managing, building and maintaining the built environment. People employed in this cluster work on new structures, restorations, additions, alterations, and repairs. Pathways related to professional and technical support for this cluster: Design/Pre-Construction, Construction and Maintenance/Operations & Repairs. (Source: www.careerclusters.org)

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Standards: Construction

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| Career Cluster/Cluster Grouping: | Architecture and Construction |
| Pathway(s): | Construction |
| Prepared Completer Competencies: | |
| <ul style="list-style-type: none"> • ACC 10. TECHNICAL SKILLS: Use the technical knowledge and skills required to pursue the targeted Architecture & Construction careers for all pathways in the career cluster, including knowledge of design, operation, and maintenance of technological systems critical to the career cluster. | |
| High School Expectations | |
| Concepts and skills students know include: | |
| <ul style="list-style-type: none"> • ACC 10.01 – Read, interpret, and use technical drawings, documents, and specifications to plan a project. | |
| Evidence Outcomes – Students Can: | 21st Century Skills and Readiness Competencies |
| <p>a. Interpret drawings used in project planning.</p> <p>MAT01.02.a, MAT04.01.a, MAT04.01.b, MAT04.01.c, MAT04.01.d, MAT04.03.a, MAT04.03.b, MAT04.04.c</p> <p>RWC01.01.e, RWC01.01.f, RWC02.02.a, RWC03.01.d, RWC03.10.a, RWC04.06.d</p> <p>PWR01.01.b, PWR01.01.e, RWC01.06.e, PWR01.02.d, PWR02.01.a, PWR02.08.a, PWR02.09.c</p> | <p>Academic Content Knowledge Alignment:</p> <p>MAT01.02.a-Mathematics, Number Sense, Properties, and Operations:</p> <ul style="list-style-type: none"> • Formulate, represent, and use algorithms with real numbers flexibly, accurately, and efficiently. <ul style="list-style-type: none"> ○ Use appropriate computation methods that encompass estimation and <p>MAT03.01.a-Mathematics, Data Analysis, Statistics, and Probability:</p> <ul style="list-style-type: none"> • Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions <ul style="list-style-type: none"> ○ Formulate appropriate research questions that can be answered with statistical analysis <p>MAT03.01.b-Mathematics, Data Analysis, Statistics, and Probability:</p> <ul style="list-style-type: none"> • Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions <ul style="list-style-type: none"> ○ Determine appropriate data collection methods to answer a research question |

- b. Use architect's plan, manufacturer's illustrations and other materials to communicate specific data and visualize proposed work.

MAT01.02.a, MAT03.01.a, MAT03.01.b, MAT03.01.c, MAT03.02.a, MAT03.02.b, MAT03.02.c, MAT03.03.a, MAT04.01.a, MAT04.01.b, MAT04.01.c, MAT04.01.d, MAT04.04.c

RWC01.01.e, RWC01.01.f, RWC01.06.e, RWC02.02.a, RWC03.01.d, RWC03.10.a, RWC04.06.d

PWR01.01.b, PWR01.01.e, PWR01.02.d, PWR02.01.a, PWR02.01.e, PWR02.08.a, PWR02.09.c

MAT03.01.c-Mathematics, Data Analysis, Statistics, and Probability:

- Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions
 - Explain how data might be analyzed to provide answers to a research question

MAT03.02.a-Mathematics, Data Analysis, Statistics, and Probability:

- The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions
 - Identify the characteristics of a well-designed and

MAT03.02.b-Mathematics, Data Analysis, Statistics, and Probability:

- The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions
 - Identify the characteristics of a well-designed and well-conducted experiment

MAT03.02.c-Mathematics, Data Analysis, Statistics, and Probability:

- The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions
 - Differentiate between the inferences that can be drawn in experiments versus observational studies

MAT03.03.a-Mathematics, Data Analysis, Statistics, and Probability:

- Visual displays and summary statistics condense the information in data sets into usable knowledge
 - Identify and choose appropriate ways to summarize numerical or categorical data using tables, graphical displays, and numerical summary statistics (describing shape, center and spread) and accounting for outliers when appropriate

MAT04.01.a-Mathematics, Shape, Dimension, and Geometric Relationships

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Calculate (or estimate when appropriate) the perimeter and area of a two-dimensional irregular shape

MAT04.01.b-Mathematics, Shape, Dimension, and Geometric Relationships:

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Justify, interpret, and apply the use of formulas for the surface area, and volume of cones, pyramids, and spheres including real-world situations

MAT04.01.c-Mathematics, Shape, Dimension, and Geometric Relationships:

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Solve for unknown quantities in relationships involving perimeter and area

MAT04.01.d-Mathematics, Shape, Dimension, and Geometric Relationships:

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Apply the effect of dimensional change, utilizing appropriate units and scales in problem-solving situations involving perimeter, area, and volume

MAT04.03.a-Mathematics, Shape, Dimension, and Geometric Relationships:

- Objects in the plane can be transformed, and those transformations can be described and analyzed mathematically
 - Make conjectures involving two-dimensional objects represented with Cartesian coordinates. Justify these conjectures using two-column proofs, paragraph proofs

MAT04.03.b-Mathematics, Shape, Dimension, and Geometric Relationships:

- Objects in the plane can be transformed, and those transformations can be described and analyzed mathematically
 - Represent transformations (reflection, translation, rotation, and dilation) using Cartesian coordinates

MAT04.04.c-Mathematics, Shape, Dimension, and Geometric Relationships

- Right triangles are central to geometry and its applications
 - Determine the midpoint of a line segment and the distance between two points in the Cartesian coordinate plane

RWC01.01.e-Reading, Writing, and Communicating, Oral Expression and Listening:

- Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness
 - Choose specific words and word order for intended effect and meaning

RWC01.01.f-Reading, Writing, and Communicating, Oral Expression and Listening:

- Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness
 - Select appropriate technical or specialized language

RWC01.06.e-Reading, Writing, and Communicating, Oral Expression and Listening:

- Effectively operating in small and large groups to accomplish a goal requires active listening
 - Support others in discussions, activities, and presentations

RWC02.02.a-Reading, Writing, and Communicating, Reading for All Purposes

- Interpreting and evaluating complex informational texts require the understanding of rhetoric, critical reading, and analysis skills
 - Use reading and note-taking strategies (outlining, mapping systems, skimming, scanning, key word search) to organize information and make connections within and across informational texts

RWC03.01.d-Reading, Writing, and Communicating, Writing and Composition:

- Style, detail, expressive language, and genre create a well-crafted statement directed at an intended audience and purpose
 - Manipulate elements of style, imagery, tone, and point of view to appeal to the senses and emotions of the reader

RWC03.10.a-Reading, Writing, and Communicating, Writing and Composition

- Literary and narrative texts develop a controlling idea or theme with descriptive and expressive language
 - Write well-focused texts with an explicit or implicit theme and details that contribute to a definite point of view and tone

RWC04.06.d-Reading, Writing, and Communicating, Research and Reasoning:

- Collect, analyze, and evaluate information obtained from multiple sources to answer a question, propose solutions, or share findings and conclusions
 - Use a variety of strategies (such as search engines, online databases, interview) to collect and organize relevant and significant information

Learning & Behavioral Skills – Post-Secondary & Workforce Readiness:

PWR01.01.b-Postsecondary & Workforce Readiness, Content Knowledge, Literacy

- Write clearly and coherently for a variety of purposes and audiences

PWR01.01.e-Postsecondary & Workforce Readiness, Content Knowledge, Literacy

- Employ standard English language properly and fluently in reading, writing, listening, and speaking

PWR01.02.d-Postsecondary & Workforce Readiness, Content Knowledge, Mathematical Sciences

- Apply knowledge of mathematics to problem solve, analyze issues, and make critical decisions that arise in everyday life

PWR02.01.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving

- Apply logical reasoning and analytical skills.

PWR02.01.e-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving

- Evaluate the credibility and relevance of information, ideas, and arguments

PWR02.08.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Communication

- Read, write, listen and speak effectively

PWR02.09.c-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Collaboration

- Cooperate for a common purpose

High School Expectations

Concepts and skills students know include:

- ACC 10.02 – Use and maintain appropriate tools, machinery, equipment, and resources to accomplish project goals.

Evidence Outcomes – Students Can:

- a. Select tools, machinery, equipment, and resources that match requirements of the job.

RWC01.02.c, RWC01.02.d, RWC01.02.e, RWC01.05.a, RWC01.05.b, RWC01.05.c, RWC01.05.d, RWC01.06.e, RWC04.01.c, RWC04.03.a, RWC04.03.b, RWC04.03.d, RWC04.04.a, RWC04.04.b, RWC04.06.d

SCI01.04.d

PWR02.01.a, PWR02.01.e

- b. Identify sources of information concerning state of the art tools, equipment, materials, technologies and methodologies.

RWC01.05.a, RWC01.05.b, RWC01.05.c, RWC01.05.d., RWC04.06.d, RWC04.01.c, RWC04.03.a, RWC04.03.b,

SCI01.04.d

PWR02.01.e

21st Century Skills and Readiness Competencies

Academic Content Knowledge Alignment:

MAT01.02.a-Mathematics, Number Sense, Properties, and Operations

- Formulate, represent, and use algorithms with real numbers flexibly, accurately, and efficiently.
 - Use appropriate computation methods that encompass estimation and

MAT02.01.a-Mathematics, Patterns, Functions, and Algebraic Structures:

- Functions model situations where one quantity determines another and can be represented algebraically, graphically, and using tables
 - Determine, using all tools including graphing technology, when a relation is a function using a table, a graph, or an equation

MAT02.01.b-Mathematics, Patterns, Functions, and Algebraic Structures

- Functions model situations where one quantity determines another and can be represented algebraically, graphically, and using tables
 - Demonstrate the relationship between all representations of linear functions using point-slope, slope-intercept, and standard form of a line

MAT02.01.c-Mathematics, Patterns, Functions, and Algebraic Structures

- Functions model situations where one quantity determines another and can be represented algebraically, graphically, and using tables
 - Represent, using all tools including graphing technology, linear, quadratic, absolute value, power, exponential, logarithmic, rational, trigonometric (sine and cosine), and step functions in a table, graph, and equation and convert from one representation

MAT02.04.b-Mathematics, Patterns, Functions, and Algebraic Structures

- Expressions, equations, and inequalities can be expressed in multiple, equivalent forms
 - Apply the properties of positive and negative rational exponents to generate equivalent algebraic expressions including those involving nth roots

MAT02.04.c-Mathematics, Patterns, Functions, and Algebraic Structures:

- Expressions, equations, and inequalities can be expressed in multiple, equivalent forms
 - Solve equations for one variable in terms of the others

- c. Demonstrate use of tools, machinery, equipment and other resources commonly used in design and construction.

MAT01.02.a, MAT02.01.a, MAT02.01.b, MAT02.01.c, MAT02.04.b, MAT02.04.c MAT04.01.a, MAT04.01.b, MAT04.01.d, MAT04.02.c, MAT 04.02.d, MAT04.04.a MAT04.04.b,

RWC01.05.a, RWC01.05.b, RWC01.05.c, RWC01.05.d, RWC04.01.c, RWC04.03.a, RWC04.03.b, RWC04.06.d,

SCI01.01.b, SCI01.01.c, SCI01.04.d, SCI01.05.d

PWR02.01.a, PWR02.06.d, PWR02.06.e, PWR02.07.d, PWR02.09.a

MAT04.01.a-Mathematics, Shape, Dimension, and Geometric Relationships:

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Calculate (or estimate when appropriate) the perimeter and area of a two-dimensional irregular shape

MAT04.01.b-Mathematics, Shape, Dimension, and Geometric Relationships:

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Justify, interpret, and apply the use of formulas for the surface area, and volume of cones, pyramids, and spheres including real-world situations

MAT04.01.d-Mathematics, Shape, Dimension, and Geometric Relationships:

- Attributes of two- and three-dimensional objects are measurable and can be quantified
 - Apply the effect of dimensional change, utilizing appropriate units and scales in problem-solving situations involving perimeter, area, and volume

MAT04.02.c-Mathematics, Shape, Dimension, and Geometric Relationships:

- Objects in the plane and their parts, attributes, and measurements can be analyzed deductively
 - Know and apply properties of angles including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve problems. Justify the results using two-column proofs, paragraph proofs, flow charts, or illustrations

MAT04.02.d-Mathematics, Shape, Dimension, and Geometric Relationships:

- Objects in the plane and their parts, attributes, and measurements can be analyzed deductively
 - Develop conjectures and solve problems about geometric figures including definitions and properties (congruence, similarity, and symmetry). Justify these conjectures using two-column proofs, paragraph proofs, flow charts, or illustrations

MAT04.04.a-Mathematics, Shape, Dimension, and Geometric Relationships:

- Right triangles are central to geometry and its applications
 - Apply right triangle trigonometry (sine, cosine, and tangent) to find indirect measures of lengths and angles

MAT04.04.b-Mathematics, Shape, Dimension, and Geometric Relationships:

- Right triangles are central to geometry and its applications
 - Apply the Pythagorean theorem and its converse to solve real-world problems

RWC01.02.c-Reading, Writing, and Communicating, Oral Expression and Listening

- Effective collaborative groups accomplish goals
 - Analyze differences in group perspectives to help bring the group to consensus or to solve a perceived problem

RWC01.02.d-Reading, Writing, and Communicating, Oral Expression and Listening

- Effective collaborative groups accomplish goals
 - Participate in the preparations of the group activity or product, defining and assuming individual roles

RWC01.02.e-Reading, Writing, and Communicating, Oral Expression and Listening,

- Effective collaborative groups accomplish goals
 - Assume a leadership role in a group that is collaboratively working to accomplish a goal

RWC01.05.a-Reading, Writing, and Communicating, Oral Expression and Listening:

- Content that is gathered carefully and organized well successfully influences an audience
 - Organize and deliver a presentation that influences a specific audience

RWC01.05.b-Reading, Writing, and Communicating, Oral Expression and Listening:

- Content that is gathered carefully and organized well successfully influences an audience
 - Reflect on the content and approach to a presentation

RWC01.05.c-Reading, Writing, and Communicating, Oral Expression and Listening:

- Content that is gathered carefully and organized well successfully influences an audience
 - Select organizational patterns and structures and choose precise vocabulary and rhetorical devices

RWC01.05.d-Reading, Writing, and Communicating, Oral Expression and Listening:

- Content that is gathered carefully and organized well successfully influences an audience
 - Make decisions about how to establish credibility and enhance appeal to the audience

RWC01.06.e-Reading, Writing, and Communicating, Oral Expression and Listening

- Effectively operating in small and large groups to accomplish a goal requires active listening
 - Support others in discussions, activities, and presentations

RWC04.01.c-Reading, Writing, and Communicating, Research and Reasoning:

- Independent research designs articulate and defend information, conclusions and solutions that address specific contexts and purposes
 - Critique and defend sources and information based on credibility, relevance and appropriateness relative to context and purpose

RWC04.03.a-Reading, Writing, and Communicating, Research and Reasoning

- Self-designed research provides insightful information, conclusions, and possible solutions
 - Define and narrow a topic for research (thesis statement, hypothesis, research question) to address a specific purpose and audience

RWC04.03.b-Reading, Writing, and Communicating, Research and Reasoning:

- Self-designed research provides insightful information, conclusions, and possible solutions
 - Evaluate and revise research questions for precision and clarity

RWC04.03.d-Reading, Writing, and Communicating, Research and Reasoning:

- Self-designed research provides insightful information, conclusions, and possible solutions
 - Use a variety of strategies (e.g., technical reading, direct observation, survey development) to collect relevant information to support the thesis/research question and explain why specific strategies were used instead of others

RWC04.04.a-Reading, Writing, and Communicating, Research and Reasoning:

- Complex situations require critical thinking across multiple disciplines
 - Analyze the logic of complex situations by questioning the purpose, question at issue, information, points of view, implications and consequences inferences, assumptions and concepts

RWC04.04.b-Reading, Writing, and Communicating, Research and Reasoning

- Complex situations require critical thinking across multiple disciplines
 - Evaluate strengths and weaknesses of their logic and logic of others by using criteria including relevance, clarity, accuracy, fairness, significance, depth, breadth, logic and precision

RWC04.06.d-Reading, Writing, and Communicating, Research and Reasoning:

- Collect, analyze, and evaluate information obtained from multiple sources to answer a question, propose solutions, or share findings and conclusions
 - Use a variety of strategies (such as search engines, online databases, interview) to collect and organize relevant and significant information

SCI01.01.b-Science, Physical Science:

- Newton's laws of motion and gravitation describe the relationships among forces acting on and between objects, their masses, and changes in their motion – but have limitations
 - Develop, communicate and justify an evidence-based analysis of the forces acting on an object and the resultant acceleration produced by a net force

SCI01.01.c-Science, Physical Science:

- Newton's laws of motion and gravitation describe the relationships among forces acting on and between objects, their masses, and changes in their motion – but have limitations
 - Develop, communicate and justify an evidence-based scientific prediction regarding the effects of the action-reaction force pairs on the motion of two interacting objects

SCI01.04.d-Science, Physical Science:

- Atoms bond in different ways to form molecules and compounds that have definite properties
 - Describe the role electrons play in atomic bonding

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| | <p>SCI01.05.d-Science, Physical Science</p> <ul style="list-style-type: none"> • Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined <ul style="list-style-type: none"> ○ Identify different energy forms, and calculate their amounts by measuring their defining characteristics |
| | <p>Learning & Behavioral Skills – Post-Secondary & Workforce Readiness:</p> <p>PWR02.01.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving</p> <ul style="list-style-type: none"> • Apply logical reasoning and analytical skills <p>PWR2.1.e-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving</p> <ul style="list-style-type: none"> • Evaluate the credibility and relevance of information, ideas, and arguments <p>PWR02.06.d-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Work Ethic</p> <ul style="list-style-type: none"> • Learn from instruction and criticism <p>PWR02.06.e-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Work Ethic</p> <ul style="list-style-type: none"> • Take responsibility for completion of work <p>PWR02.07.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Personal Responsibility</p> <ul style="list-style-type: none"> • Balance self-advocacy with the consideration of others <p>PWR02.09.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Collaboration</p> <ul style="list-style-type: none"> • Work effectively with others |

| High School Expectations | |
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| Concepts and skills students know include: | |
| <ul style="list-style-type: none"> • ACPB 01.08 Understand purpose for scheduling as it relates to successful completion of the project. | |
| Evidence Outcomes – Students Can: | 21st Century Skills and Readiness Competencies |
| <p>a. Develop a schedule for a specific project.</p> <p>RWC01.01.b, RWC01.01.c, RWC04.03.a, RWC04.06.c</p> <p>PWR01.01b, PWR01.01c, PWR02.01.a, PWR02.01.b PWR02.06.a, PWR02.08.b, PWR02.09.b, PWR02.09.c</p> <p>b. Explain rationale for a specific scheduling procedure.</p> <p>RWC01.01.b, RWC04.03.a, RWC04.06.c</p> <p>PWR02.08.a, PWR02.08.b</p> | <p>Academic Content Knowledge Alignment:</p> <p>RWC01.01.b-Reading, Writing, and Communicating, Oral Expression and Listening</p> <ul style="list-style-type: none"> • Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness <ul style="list-style-type: none"> ○ Identify a central idea or thesis, organize ideas, and develop a speech for an intended purpose and audience <p>RWC01.01.c-Reading, Writing, and Communicating, Oral Expression and Listening</p> <ul style="list-style-type: none"> • Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness <ul style="list-style-type: none"> ○ Use examples, illustrations, graphics, quotations, analogies, facts, and statistics to focus and support the content of a presentation <p>RWC04.03.a-Reading, Writing, and Communicating, Research and Reasoning:</p> <ul style="list-style-type: none"> • Self-designed research provides insightful information, conclusions, and possible solutions <ul style="list-style-type: none"> ○ Define and narrow a topic for research (thesis statement, hypothesis, research question) to address a specific purpose and audience <p>RWC04.06.c-Reading, Writing, and Communicating, Research and Reasoning</p> <ul style="list-style-type: none"> • Collect, analyze, and evaluate information obtained from multiple sources to answer a question, propose solutions, or share findings and conclusions <ul style="list-style-type: none"> ○ Identify and evaluate potential sources of information for accuracy, reliability, validity, and timelines |
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| | <p>PWR02.01.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving</p> <ul style="list-style-type: none">• Apply logical reasoning and analytical skills <p>PWR02.01.b-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving</p> <ul style="list-style-type: none">• Conduct research using acceptable research methods <p>PWR02.06.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Work Ethic</p> <ul style="list-style-type: none">• Plan and prioritize goals <p>PWR02.08.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Communication</p> <ul style="list-style-type: none">• Read, write, listen and speak effectively <p>PWR02.08.b-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Communication</p> <ul style="list-style-type: none">• Construct clear, coherent, and persuasive arguments <p>PWR02.09.b-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Collaboration</p> <ul style="list-style-type: none">• Acknowledge authority and take direction <p>PWR02.09.c-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Collaboration</p> <ul style="list-style-type: none">• Cooperate for a common purpose |
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| High School Expectations | |
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| Concepts and skills students know include: | |
| <ul style="list-style-type: none"> • ACPB 02.01 Create and apply a jobsite safety program to ensure safe practices and procedures. | |
| Evidence Outcomes – Students Can: | 21st Century Skills and Readiness Competencies |
| <p>a. Determine procedures for a jobsite safety program.</p> <p>RWC01.01.c, RWC01.01.d, RWC01.01.e, RWC04.02.b, RWC04.06.c</p> <p>PWR02.06.e, PWR02.06.f, PWR02.07.c, PWR02.07.d, PWR02.07.g, PWR02.09.d</p> <p>b. Explain the importance of workers being OSHA certified.</p> <p>RWC01.01.c, RWC01.01.e, RWC01.02.f, RWC04.02.e, RWC04.06.c</p> <p>PWR02.08.a</p> | <p>Academic Content Knowledge Alignment:</p> <p>RWC01.01.c-Reading, Writing, and Communicating, Oral Expression and Listening</p> <ul style="list-style-type: none"> • Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness <ul style="list-style-type: none"> ○ Use examples, illustrations, graphics, quotations, analogies, facts, and statistics to focus and support the content of a presentation <p>RWC01.01.d-Reading, Writing, and Communicating, Oral Expression and Listening</p> <ul style="list-style-type: none"> • Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness <ul style="list-style-type: none"> ○ Use grammar and vocabulary appropriate for the situation, audience, topic, and purpose <p>RWC01.01.e-Reading, Writing, and Communicating, Oral Expression and Listening</p> <ul style="list-style-type: none"> • Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness <ul style="list-style-type: none"> ○ Choose specific words and word order for intended effect and meaning <p>RWC01.02.f-Reading, Writing, and Communicating, Oral Expression and Listening</p> <ul style="list-style-type: none"> • Effective collaborative groups accomplish goals <ul style="list-style-type: none"> ○ Self-evaluate roles in the preparation and completion of the group goal <p>RWC04.02.b-Reading, Writing, and Communicating, Research and Reasoning:</p> <ul style="list-style-type: none"> • Logical arguments distinguish facts from opinions, and evidence defines reasoned judgment <ul style="list-style-type: none"> ○ Distinguish between evidence and inferences <p>RWC04.02.e-Reading, Writing, and Communicating, Research and Reasoning</p> <ul style="list-style-type: none"> • Logical arguments distinguish facts from opinions, and evidence defines reasoned judgment <ul style="list-style-type: none"> ○ Summarize ideas that include alternate views, rich detail, well developed paragraphs, and logical argumentation |

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| | <p>RWC04.06.c-Reading, Writing, and Communicating, Research and Reasoning</p> <ul style="list-style-type: none"> • Collect, analyze and evaluate information obtained from multiple sources to answer a question, propose solutions, or share findings and conclusions. <ul style="list-style-type: none"> ○ Identify and evaluate potential sources of information for accuracy, reliability, validity and timeliness |
| | <p>Learning & Behavioral Skills – Post-Secondary & Workforce Readiness:</p> <p>PWR02.06.e-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Work Ethic</p> <ul style="list-style-type: none"> • Take responsibility for completion of work <p>PWR02.06.f-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Work Ethic</p> <ul style="list-style-type: none"> • Act with maturity, civility, and politeness <p>PWR02.07.c-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Personal Responsibility</p> <ul style="list-style-type: none"> • Behave honestly and ethically <p>PWR02.07.d-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Personal Responsibility</p> <ul style="list-style-type: none"> • Take responsibility for actions <p>PWR02.07.g-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Personal Responsibility</p> <ul style="list-style-type: none"> • Attend to personal health and wellness <p>PWR02.08.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Communication</p> <ul style="list-style-type: none"> • Read, write, listen and speak effectively <p>PWR02.09.d-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Collaboration</p> <ul style="list-style-type: none"> • Use teamwork and leadership skills effectively |

| High School Expectations | |
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| Concepts and skills students know include: | |
| <ul style="list-style-type: none"> • ACPB 05.01 Examine building systems and components to evaluate their usefulness to a project. | |
| Evidence Outcomes – Students Can: | 21st Century Skills and Readiness Competencies |
| <p>a. Identify building systems needed to complete a construction project.</p> <p>RWC03.02.g</p> <p>SCI01.05.b, SCI01.05.c, SCI01.05.d, SCI01.06.a, SCI01.06.b, SCI01.06.c</p> <p>PWR01.02.d, PWR01.03.b, PWR02.01.a, PWR02.09.c</p> | <p>Academic Content Knowledge Alignment:</p> <p>RWC03.02.g-Reading, Writing, and Communicating, Writing and Composition</p> <ul style="list-style-type: none"> • Ideas, evidence, structure, and style create persuasive, academic, and technical texts for particular audiences and specific purposes <ul style="list-style-type: none"> ○ Draw a conclusion by synthesizing information <p>SCI01.05.b-Science, Physical Science</p> <ul style="list-style-type: none"> • Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined <ul style="list-style-type: none"> ○ Use appropriate measurements, equations and graphs to gather, analyze, and interpret data on the quantity of energy in a system or an object <p>SCI01.05.c-Science, Physical Science</p> <ul style="list-style-type: none"> • Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined <ul style="list-style-type: none"> ○ Use direct and indirect evidence to develop predictions of the types of energy associated with objects <p>SCI01.05.d-Science, Physical Science</p> <ul style="list-style-type: none"> • Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined <ul style="list-style-type: none"> ○ Identify different energy forms, and calculate their amounts by measuring their defining characteristics <p>SCI01.06.a-Science, Physical Science</p> <ul style="list-style-type: none"> • When energy changes form, it is neither created nor destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases <ul style="list-style-type: none"> ○ Use direct and indirect evidence to develop and support claims about the conservation of energy in a variety of systems, including transformations to heat |

SCI01.06.b-Science, Physical Science

- When energy changes form, it is neither created nor destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases
 - Evaluate the energy conversion efficiency of a variety of energy transformations

SCI01.06.c-Science, Physical Science

- When energy changes form, it is neither created nor destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases
 - Describe energy transformations both quantitatively and qualitatively

Learning & Behavior Skills – Post Secondary & Workforce Readiness:

PWR01.02.d-Postsecondary & Workforce Readiness, Content Knowledge, Mathematical Sciences

- Apply knowledge of mathematics to problem solve, analyze issues, and make critical decisions that arise in everyday life

PWR01.03.b-Postsecondary & Workforce Readiness, Content Knowledge, Science

- Use theoretical principles within a scientific field and relevant empirical evidence to make and draw conclusions

PWR02.01.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving

- Apply logical reasoning and analytical skills

PWR02.09.c-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Collaboration

- Cooperate for a common purpose