



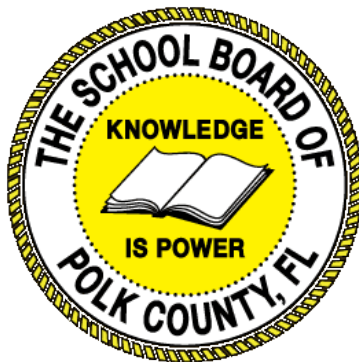
# Individual Test Item Specifications

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8720330- Building Construction  
Technologies 3

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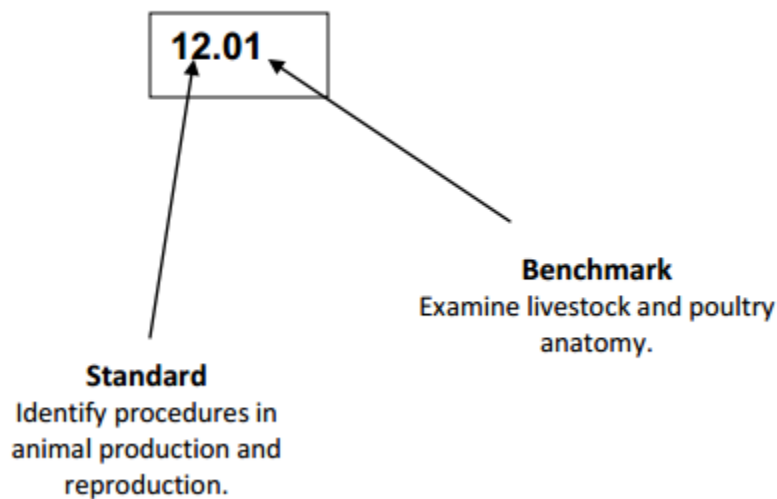
## I. Guide to the Individual Benchmark Specifications

Content specific guidelines are given in the *Individual Benchmark Specifications* for each course. The *Specifications* contains specific information about the alignment of items with the Florida Standards. It identifies the manner in which each benchmark is assessed, provides content limits and stimulus attributes for each benchmark, and gives specific information about content, item types, and response attributes.

### Benchmark Classification System

- Each Career and Technical Education course has its own set of course standards. The benchmarks are organized numerically, with two numbers separated by a decimal point. The first number is the standard number, and the second number is the benchmark number. You will see these numbers on the Item Specifications for each course.

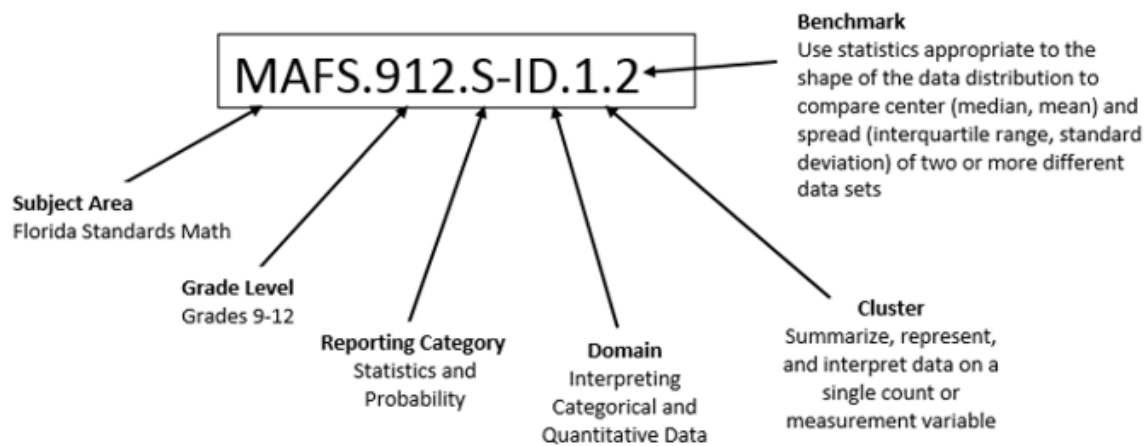
An example, from Agritechnology 1:



*The image above describes the components of a Career and Technical Education Standard and Benchmark classification system.*

Each MAFS benchmark is labeled with a system of letters and numbers.

- The four letters in the *first position* of the label identify the **Subject**.
- The number(s) in the *second position* represents the **Grade Level**.
- The letter(s) in the *third position* represents the **Category**.
- The number in the fourth position shows the **Domain**.
- The number in the *fifth position* identifies the **Cluster**.
- The number in the last position identifies the specific **Benchmark**.



*The image above describes the components of a Florida Standard and Benchmark classification system.*

## Definitions of Benchmark Specifications

The *Individual Benchmark Specifications* provides standard-specific guidance for assessment item development for the Florida Department of Education Career and Technical Education item banks. For each benchmark assessed, the following information is provided.

<b>Reporting Category</b>	is a grouping of related benchmarks that can be used to summarize and report achievement.
<b>Standard</b>	refers to the standard statement presented in the Florida Standards.
<b>Benchmark</b>	refers to the benchmark statement presented in the Florida Standards. In some cases, two or more related benchmarks are grouped together because the assessment of one benchmark addresses another benchmark.
<b>Item Types</b>	are used to assess the benchmark or group of benchmark.
<b>Cognitive Complexity</b>	ideal level at which item should be assessed.
<b>Benchmark Clarifications</b>	explain how achievement of the benchmark will be demonstrated by students. In other words, the clarification statements explain what the student will do when responding to questions.
<b>Content Limits</b>	define the range of content knowledge and that should be assessed in the items for the benchmark.
<b>Stimulus Attributes</b>	define the types of stimulus materials that should be used in the items, including the appropriate use of graphic materials and item context or content.
<b>Response Attributes</b>	define the characteristics of the answers that a student must choose or provide.
<b>Content Focus</b>	addresses the broad key terms and concepts associated with the examples found in the standards, benchmarks, or benchmark clarifications.
<b>Sample Items</b>	are provided for each type of question assessed. The correct answer for all sample items is provided.

## II. Individual Benchmark Specifications

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.01 Explain the purpose and components of contract documents and specifications.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or explain the purpose and components of contract documents and specifications.
<b>Content Focus</b>	Specifications, contract documents, blueprints, RFI, project manager, construction manager, supervisor, purchase order, contract, agreement, application, code, ACI, schedule, pay application, software
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of contract documents and explain the purpose and components of contract documents and specifications. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which construction document is the instruction manual on how to build a structure? A. blueprint B. contract C. estimate D. specifications Answer: A

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.02 Design and draw plans, elevations, sections and details.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or design and draw plans, elevations, sections and details.
<b>Content Focus</b>	Plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman
<b>Content Limits</b>	The content limits will include, but not be limited to components of various elements of design, draw plans, elevations, sections and details. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which item in a blueprint gives specific information on how a wall is assembled? A. architectural plan B. building elevation C. structural plan D. wall detail Answer: D

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.03 Explain the relationships of the elements of contract documents.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will be demonstrate knowledge, make observations or explain the relationships of the elements of contract documents.
<b>Content Focus</b>	Specifications, contract documents, blueprints, RFI, project manager, construction manager, supervisor, purchase order, contract, agreement, application, code, ACI, schedule, pay application, software
<b>Content Limits</b>	The content limits will include, but not be limited to components of various benefits and ability to identify the relationships of the elements of contract documents. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Indicate which two contract documents are closely related and share the goal of receiving supplies on the job? A. bill of sale and contract B estimate and pay application C. invoice and purchase order D. notice to proceed and change order Answer: C



<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.04 Create lists of materials and specifications.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or create lists of materials and specifications.
<b>Content Focus</b>	Materials, specifications, purchase order, list of materials, plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of materials and specifications. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which contract document indicates the type of materials used on the job? A. contract B. invoice C. RFI's D. specifications Answer: D

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.05 Use architectural and engineering scales.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or use architectural and engineering scales.
<b>Content Focus</b>	Measurements, type of scales, scale, drawn to scale, plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman, calculating, scale factors, drawing scale, symbols, abbreviations, reference books, CAD design
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of uses of architectural and engineering scales. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What are the two most common types of scales used in modern day construction? A.architectural and engineering B.concrete and dirt C.rubrics and guides D.weights and measures Answer: A

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.06 Compare various computer-aided drafting (CAD) and building information modeling (BIM) products and how they can be used by designers and construction project managers.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or compare various computer-aided drafting (CAD) and building information modeling (BIM) products and how they can be used by designers and construction project managers.
<b>Content Focus</b>	Manage, assemble, create model, workflows, model data, project tracking, visual estimating, measurements, type of scales, scale, drawn to scale, plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman, calculating, scale factors, drawing scale, take offs, symbols, abbreviations, reference books, CAD design, project tracking, human resources, project visualization
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of computer-aided drafting (CAD) and building information modeling (BIM) products and how they can be used by designers and construction project managers. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What is the most widely used construction design software? A. BIM B. CAD C. TAM D. WAO Answer: B

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.07 Prepare estimates using estimating software.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or prepare estimates using estimating software.
<b>Content Focus</b>	Estimating software, estimate, manage, assemble, create model, workflows, model data, project tracking, visual estimating, measurements, type of scales, scale, drawn to scale, plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman, calculating, scale factors, drawing scale, take offs, symbols, abbreviations, reference books, CAD design, project tracking, human resources, project visualization
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of estimates using estimating software. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What is the process of determining cost associated with time, equipment, materials, and manpower needed to complete a job? A. blueprint B. estimate C. pay application D. specifications Answer: B

<b>Standard</b>	23.0 Create construction documents, contract documents and specifications.
<b>Benchmark</b>	23.08 Prepare schedules using bar charts and scheduling software.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or prepare schedules using bar charts and scheduling software.
<b>Content Focus</b>	Gantt chart, excel, bar charts, scheduling software, time, money, revenue, materials, delivery schedule, project schedule, work schedule, LEED points, critical path, days, weeks, months, year, completion to date, stored materials, acquisitions, project management
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of schedules using bar charts and scheduling software. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What is the most commonly used chart to visualize progress on a construction project? A. Crawford Chart B. Gantt Chart C. Slice Chart D. Stowe Chart Answer: B

<b>Standard</b>	24.0 Select the appropriate heavy equipment for a given task.
<b>Benchmark</b>	24.01 Identify different types and uses of heavy equipment.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or identify different types and uses of heavy equipment.
<b>Content Focus</b>	Fill, move loads, haul, carry, cradle, transport, trailer, pan, dump truck, grader, fork lift, backhoe, dozer, compactor, blade, laser grader, track hoe, rubber tire hoe, skid steer, concrete mixer, mixer, pay loader, scraper, pay hauler, power screed, crane, tower crane, boom pump, concrete pump, line pump, placing boom, grid loader, drag line
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds, and identify different types and uses of heavy equipment. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What piece of equipment is used to move palletized loads? A. dozer B. forklift C. grader D. skid steer Answer: B

<b>Standard</b>	24.0 Select the appropriate heavy equipment for a given task.
<b>Benchmark</b>	24.02 Describe the operations of different types of heavy equipment.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or describe the operations of different types of heavy equipment.
<b>Content Focus</b>	Vibrate, compact, haul, lift, lower, transport, remove, demo, push, pull, pump, pump concrete, conveyors, pitch, dragline, pile drive, shovel, dig, scrape, excavate, line haul, pay haul, load, roller, tamper, fueler, barg
<b>Content Limits</b>	The content limits will include, but not be limited to components, identify, and describe the operations of different types of heavy equipment. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which piece of equipment is used to transport fill dirt? A. crane B. dumptruck C. rolling compactor D. tamper Answer: B

<b>Standard</b>	25.0 Identify local, state and federal codes and regulations.
<b>Benchmark</b>	25.01 Identify and locate local, state and federal codes, regulations and standards.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or identify and locate local, state and federal codes, regulations and standards.
<b>Content Focus</b>	Local, state, federal, Local codes, state codes, federal codes, regulation, standards, compliance, regulation, EPA, environment
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds, and ability to identify and locate local, state and federal codes, regulations and standards. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Who oversees proper building codes from a local, state and federal level? A. Building Department B. City Engineer C. Governor D. Project Manager Answer: A



<b>Standard</b>	25.0 Identify local, state and federal codes and regulations.
<b>Benchmark</b>	25.02 Identify local, state and federal regulatory agencies.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or identify local, state and federal regulatory agencies.
<b>Content Focus</b>	OSHA, EPA, Occupational Safety and Health Administration, Environmental Protection Agency, Veterans Administration, American with Disabilities, Administration of Developmental Disabilities, Department of Transportation, DOT, FDOT, Florida Department of Transportation, Corp of Engineers, Commerce Department, HUD, FHA
<b>Content Limits</b>	The content limits will include, but not be limited to components and ability to identify local, state and federal regulatory agencies. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which acronym stands for the federal regulatory agency that ensures environmental compliance? A. EPA B. FDOT C. OSHA D. NTSB Answer: A

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.01 Determine zoning requirements.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or determine zoning requirements.
<b>Content Focus</b>	Zoning requirements, zoning, development, project, civil drawing, civil engineer, types of zoning, SFR, MFR, PUD, MF, PUD, eminent domain, easement, trespassing, types of zoning (residential, commercial, industrial, agricultural, rural, historic, conditional, combination, esthetic, variable use)
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds, and ability to identify and determine zoning requirements. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	If you are building a single family residence, what is the first requirement that must be met during the approval process? A. design B. engineering C. survey D. zoning Answer: D

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.02 Assess suitability for project.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or assess suitability for project.
<b>Content Focus</b>	Suitability, assessment, project, zoning, landscape, soils report, use of land, history of land, traffic patterns, access to project, parking, laws that govern the project location, real estate, zoning laws, manufacturing, storage, incentives, subsidies, restrictions, densities, tax abatements, tax incentives
<b>Content Limits</b>	The content limits will include, but not be limited to components and ability to identify and assess suitability for project. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which document is needed to determine the quality of the land that you will construct a building on? A. comparables B.realtor affidavit C.soil report D. zoning Answer: C

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.03 Determine boundary lines.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or determine boundary lines.
<b>Content Focus</b>	Zoning requirements, zoning, development, project, civil drawing, civil engineer, types of zoning, SFR, MFR, PUD, MF, PUD, eminent domain, easement, trespassing, types of zoning (residential, commercial, industrial, agricultural, rural, historic, conditional, combination, esthetic, variable use)
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of boundary lines. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What is the professional process called that locates exact property locations? A. architectural plan B. layout C. survey D. zoning Answer: C

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.04 Determine elevations.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or determine elevations.
<b>Content Focus</b>	Plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman, civil engineer, plan details, real estate, zoning, easements, civil plans, contours, contour lines, survey, hubs, boundary lines
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of elevations. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Lines on a civil drawing that help you understand the elevations are referred to as? A. boundary lines B. contour lines C. elevation lines D. structural lines Answer: B

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.05 Determine need to add, remove, or relocate fill.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or determine need to add, remove, or relocate fill.
<b>Content Focus</b>	Add fill, remove fill, relocate fill, plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman, civil engineer, plan details, real estate, zoning, easements, civil plans, contours, contour lines, survey, hubs, boundary lines
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of fill and ability to identify and determine need to add, remove, or relocate fill. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	In order to increase the elevation of a building pad, you would need to do what? A. add fill B. remove fill C. relocate fill D. sustain current level of fill Answer: A

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.06 Layout and mark building location and elevation.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or layout and mark building location and elevation.
<b>Content Focus</b>	Layout, mark building location, setbacks, property line, building corners, add fill, remove fill, relocate fill, plans, elevations, sections, details, blueprints, scale, engineer, CAD, BIM, architect, draftsman, civil engineer, plan details, real estate, zoning, easements, civil plans, contours, contour lines, survey, hubs, boundary lines
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of layout and knowledge of how to mark building location and elevation. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Which industry professional is responsible for layout and building locations and elevations? A. architect B. draftsman C. engineer D. surveyor Answer: D

<b>Standard</b>	26.0 Perform site preparation and maintenance.
<b>Benchmark</b>	26.07 Clean and maintain the site.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or clean and maintain the site.
<b>Content Focus</b>	Clean site, maintain site, easement, elevator, trash chute, landfill, hauling, dump truck, roll off, dumpster, housekeeping pads, staging area, drop off
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of methods, and ability to identify a clean site and how to maintain the site. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Where should trash and debris from a construction site be placed? A.dumpster B.empty lot C. storage yard D. trash can Answer: A



<b>Standard</b>	27.0 Estimate project costs and schedule construction activities for a specific job.
<b>Benchmark</b>	27.01 Calculate material quantities and purchase cost (including sales tax).
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or calculate material quantities and purchase cost (including sales tax).
<b>Content Focus</b>	Calculate material quantities, purchase cost, sales tax, take off, estimate, bill of sale, purchase order, specifications, contract documents, blue prints, RFI, project manager, construction manager, supervisor, purchase order, contract, agreement, application, code, ACI, schedule, pay application, software
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of methods to calculate material quantities and purchase cost (including sales tax).Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	If you want to tile a 10' x 12' area with 1' square tiles, which cost \$2.35 per square foot, what would be the cost of the tile? A. \$122 B. \$122.35 C. \$282 D. \$282.35 Answer: C

<b>Standard</b>	27.0 Estimate project costs and schedule construction activities for a specific job.
<b>Benchmark</b>	27.02 Calculate labor costs including work hours, duration and cost of workers.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or calculate labor costs including work hours, duration and cost of workers.
<b>Content Focus</b>	Labor cost, hours worked, duration, project cost, work hours, cost of worker, man hours, calculate material quantities, purchase cost, sales tax, take off, estimate, bill of sale, purchase order, specifications, contract documents, blueprints, RFI, project manager, construction manager, supervisor, purchase order, contract, agreement, application, code, ACI, schedule, pay application, software
<b>Content Limits</b>	The content limits will include, but not be limited to components of various methods to calculate labor costs including work hours, duration and cost of workers. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	A construction project to pour a slab will take 5 workers at 8 hours each. The labor cost for each employee is \$15 per hour. What is the total labor cost for this particular project? A. \$75 B. \$120 C. \$600 D. \$1200 Answer: C

<b>Standard</b>	27.0 Estimate project costs and schedule construction activities for a specific job.
<b>Benchmark</b>	27.03 Explain and compute federal, state and local taxes.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or explain and compute federal, state and local taxes.
<b>Content Focus</b>	Compute local taxes, compute state taxes, compute federal taxes, tax rates, tax burden, labor cost, hours worked, duration, project cost, work hours, cost of worker, man hours, calculate material quantities, purchase cost, sales tax, take off, estimate, bill of sale, purchase order, specifications, contract documents, blueprints, RFI, project manager, construction manager, supervisor, purchase order, contract, agreement, application, code, ACI, schedule, pay application, software
<b>Content Limits</b>	The content limits will include, but not be limited to components and ability to explain and compute federal, state and local taxes. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	If the local tax rate is 7%, and you purchase 1 yard of concrete at \$100 per cubic yard, what is the total amount of sales tax that will be added to the purchase price? A. \$7 B. \$14 C. \$70 D. \$700 Answer: A

<b>Standard</b>	27.0 Estimate project costs and schedule construction activities for a specific job.
<b>Benchmark</b>	27.04 Schedule various construction activities.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)=X (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or schedule various construction activities.
<b>Content Focus</b>	Scheduled activities, construction time line, construction schedule, various trades, Gantt chart, excel, bar charts, scheduling software, time, money, revenue, materials, delivery schedule, project schedule, work schedule, LEED points, critical path, days, weeks, months, year, completion to date, stored materials, acquisitions, project management
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of schedules and various construction activities. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	On a construction project, if the concrete pour is scheduled from 7:00am-5:00pm, what time should laborers arrive? A. 6:30am B. 7:00am C. 7:30am D. 5:00pm Answer: A

<b>Standard</b>	27.0 Estimate project costs and schedule construction activities for a specific job.
<b>Benchmark</b>	27.05 Determine amount to be charged to the client at various intervals throughout the project.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or determine amount to be charged to the client at various intervals throughout the project.
<b>Content Focus</b>	Charge amount, cost to complete, interval building, time and materials billing, project cost, pay application process, specifications, contract documents, blueprints, RFI, project manager, construction manager, supervisor, purchase order, contract, agreement, application, code, ACI, schedule, pay application, software
<b>Content Limits</b>	The content limits will include, but not be limited to components of various methods to identify and determine amount to be charged to the client at various intervals throughout the project. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	If a concrete slab costs \$100,000.00, and your monthly pay application is currently 30% complete, what would be the amount for the first monthly billing? A. \$30 B. \$3000 C. \$30,000 D. \$100,000 Answer: C

<b>Standard</b>	28.0 Investigate sustainability issues related to the design, construction and maintenance of the built environment.
<b>Benchmark</b>	28.01 Describe the impact of the construction industry on the natural environment.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or describe the impact of the construction industry on the natural environment.
<b>Content Focus</b>	Natural environment, green counsel, waterways, conservation areas, swamps, rivers, streams, design, LEED, leadership, assessment tools, washout, EPA, Tilt up, foam block, stucco, masonry, framed, recycling, building code, expansion and heat transfer, start up, planning, environment, LEED cert, green building, energy efficient
<b>Content Limits</b>	The content limits will include, but not be limited to components of various methods and ability to describe the impact of the construction industry on the natural environment. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What does the acronym LEED stand for? A. Leadership in Energy and Environmental Design B. Leadership, Energy, Economy, and Development C. Leadership Enterprise for Environmental Disadvantages D. Lead and Engage in Environmental Development Answer: A

<b>Standard</b>	28.0 Investigate sustainability issues related to the design, construction and maintenance of the built environment.
<b>Benchmark</b>	28.02 Describe the life cycle phases of a building and its impacts on the environment throughout the life of the building.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or describe the life cycle phases of a building and its impacts on the environment throughout the life of the building.
<b>Content Focus</b>	Recycling, building code, expansion and heat transfer, start up, planning, environment, LEED, green building, energy efficient
<b>Content Limits</b>	The content limits will include, but not be limited to components of, and identify and describe the life cycle phases of a building and its impacts on the environment throughout the life of the building. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	When clearing a lot for building construction, what are the impacts on the environment? A. loss of trees, topsoil and grass; relocation or destruction of animal habitats B. creation of additional shade trees and animal habitats C. additional flower be

<b>Standard</b>	28.0 Investigate sustainability issues related to the design, construction and maintenance of the built environment.
<b>Benchmark</b>	28.03 Recommend sustainable alternatives to conventional construction practices.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or recommend sustainable alternatives to conventional construction practices.
<b>Content Focus</b>	Tilt up, foam block, stucco, masonry, framed, LEED, recycling, building code, expansion and heat transfer, start up, planning, environment, LEED cert, green building, energy efficient
<b>Content Limits</b>	The content limits will include, but not be limited to components of various kinds of recommend sustainable alternatives to conventional construction practices. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	Traditional large masonry structures have been converted to what type of cost effective conventional alternative? A.Cast-in-place B.formed walls C.framed walls D.tilt-up Answer: D



<b>Standard</b>	28.0 Investigate sustainability issues related to the design, construction and maintenance of the built environment.
<b>Benchmark</b>	28.04 Identify specific practices that can lessen adverse impacts on the environment.
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M,H
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or identify specific practices that can lessen adverse impacts on the environment.
<b>Content Focus</b>	Washout, EPA, Tilt up, foam block, stucco, masonry, framed, LEED, recycling, building code, expansion and heat transfer, start up, planning, environment, LEED cert, green building, energy efficient
<b>Content Limits</b>	The content limits will include, but not be limited to components of various elements and abilities to identify specific practices that can lessen adverse impacts on the environment. Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What type of environmentally friendly energy alternative is becoming more widely used in recent history? A.coal fuel B.kinetic power C. solar power D. turbines Answer: C

<b>Standard</b>	28.0 Investigate sustainability issues related to the design, construction and maintenance of the built environment.
<b>Benchmark</b>	28.05 Investigate building assessment tools such as Leadership in Energy and Environmental Design (LEED).
<b>Item Types</b> (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)= (P)= (ER)=
<b>Cognitive Complexity Level</b>	M
<b>Benchmark Clarification</b>	The student will demonstrate knowledge, make observations or investigate building assessment tools such as Leadership in Energy and Environmental Design (LEED).
<b>Content Focus</b>	Design, LEED, leadership, assessment tools, washout, EPA, tilt up, foam block, stucco, masonry, framed, recycling, building code, expansion and heat transfer, start up, planning, environment, LEED cert, green building, energy efficient
<b>Content Limits</b>	The content limits will include, but not be limited to ability to identify, describe and investigate building assessment tools such as Leadership in Energy and Environmental Design (LEED). Text and vocabulary will be grade appropriate.
<b>Stimulus Attributes</b>	Question stem, vocab, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
<b>Response Attributes</b>	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
<b>Sample Item</b>	What system rates a builder on environmentally friendly building practices? A. AARP B. CPA C. LEED D. NTSB Answer: C