MULTIPLE-CHOICE ITEM-WRITING GUIDELINES

FOR THE
AMERICAN INSTITUTE OF CONSTRUCTORS

CONSTRUCTOR CERTIFICATION EXAMINATIONS

This guide has been prepared to assist item writers in writing effective test items at the Recall, Understanding and Problem Solving cognitive behavior levels of Thomas Haladyna's (1997) taxonomy in his book titled *Writing Test Items to Evaluate Higher Order Thinking*. This pamphlet was developed to assist item writers in writing test items for use in the Level 1 Construction Fundamentals Examination. This guide also identifies the most important and valid multiple-choice item writing rules based primarily on Thomas Haladyna's and Steven Downing's research on developing and validating these rules. The multiple -choice item writing rules are based upon their research published in these sources.

Haladyna, Thomas (1994). *Developing and Validating Multiple-Choice Test Items*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Haladyna, Thomas M. & Downing, Steven M. (1989a) A Taxonomy of Multiple-Choice Item-Writing Rules. *Applied Measurement in Education*, 2, 37-50.

Haladyna, Thomas M. & Downing, Steven M. (1989b) Validity of a Taxonomy of Multiple-Choice Item-Writing Rules. *Applied Measurement in Education*, 2,1 51-78.

Haladyna, Thomas M., & Downing, Steven M., (1985 , April) *A Quantitative Review of Research on Multiple-Choice Item Writing: The American College Testing Program*. A paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

In addition, some of the item writing guidelines were adapted from Professional Testing Corporation's (2004) *Item Developers Guide* and National Assessment Institute's (1993) *Item Writing Guide for Subject Matter Experts*.

This guide describes the components of a multiple-choice item, the characteristics of a good test item, the components of a multiple-choice scenario or item set. This guide also provides examples for most of the item writing rules and the complete process for writing higher order critical thinking questions at the problem solving, evaluating and predicting cognitive levels.

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This manual is intended to instruct Subject Matters Experts (SME) on how to write effective multiple-choice test items according to the test specifications. The purpose of this guide is to rapidly develop an item writer's proficiency in writing test items at the Recall, Understanding and Problem Solving levels. This guide was produced to provide structure on how to generate high quality multiple-choice test items. Some of the rules in the item writing process are outlined below.

What are the General Item-Writing Guidelines?

The first step in item writing is to gather your construction resources such as textbooks, reference books, schedules, financial statements, cost reports, bar charts and organizational charts. It is very helpful if you are going to utilize schedules, charts, or reports as an exhibit for writing certain test items that these are in an electronic format. After gathering your resources, the first general item-writing guideline is to:

! **Circle ONE test specifications Level 1 or Level 2**. Using the Level Selected,

! **State the Roman Numeral Content Area Number. Required**
State the Alphabet Category Letter. Required
State the Arabic Number for the Subcategory. Required

! **Identify the Reference Source Utilized for the Test Item**
To begin, the item writer must be familiar with the Content Outline and the Detailed Content Outline for the Level 1 Construction Fundamentals Examination. The Content Outline indicates the emphasis or percentage that will be given to each section of the outline and the Detailed Outline defines the content that the examination will cover. A copy of the Detailed Content Outline for the Level 1 Construction Fundamentals Test Specifications and the Level 2 Test Specifications are included in the Appendix.

Some additional general item-writing guidelines are to:

! **Focus on test items that a competent candidate will encounter in the workplace**.
The primary focus of the Level 1 Construction Fundamentals examination is the skills that an entry level individual with six months to one year of construction experience after obtaining a bachelor degree in construction will be performing.

! **Select the key verb item outcome from the mental behavior classification system**.
! **Using the key verb, circle the Mental Behavior category you are trying to test.**
They are Recall, Understanding, Problem Solving, Evaluating or Predicting.

! **Using the key verb, write a generic item stem which focuses on one important idea**.
Keep the purpose of the test item clearly in mind. What is the intent or content area that you are trying to test? Are you trying to test a Fact, a Concept, a Principle or a Procedure?

! **Avoid trick questions that lead to incorrect responses**. These are perceived as tricky.

Intentional. This type of trick item refers to item writers who intentionally embed a not or a negative term in the stem and they do not emphasize the word.

Trivial content. Items are considered tricky if the content of the item is unimportant and the trivial point is the focus of the correct response.

Stem includes unnecessary window dressing. Items are considered tricky if the item writer provided irrelevant information for determining the correct response.

Correct response discrimination. Items are considered tricky if the item is discussed at one level of precision such as the approximate area and then it is tested at a much finer level of discrimination such as decimal areas.

Multiple correct responses. Items that have extremely subtle differences in the responses were considered tricky. For example, all responses had four decimal places and the first two were the same.

Opposite principle. Items are considered tricky if they measure knowledge of content in the opposite from which it was learned.

Highly ambiguous. Items are considered tricky if the best candidates had no idea of the correct response and they had to guess.

! **Avoid verbatim phrasing from a textbook.**
This type of questioning leads to rote memory for students and most of the test questions are at the lower cognitive level of recall.

What are the Components of a Multiple-choice Item?
This guide describes the components of a multiple-choice item, the characteristics of a good test item. It also provides examples for most of the item writing rules and the complete process for writing higher order critical thinking questions at the problem solving, evaluating and predicting cognitive levels. A *Multiple-choice item* is a test question or item that consists of a stem in which a complete problem is posed followed by four options or responses, the one-best, correct or keyed response and three plausible distracters.

The *Stem* is the initial part of the multiple-choice item that presents a complete question. Professional Testing Corporation states that "it is sometimes easier for new item writers to produce good items if they use the question format in the stem, since each of the options must then be an answer to the question asked in the stem" (p 4).

The *Options* are the four possible choices or responses to a multiple-choice item. One of the responses is called the "one best or correct answer or keyed response." The incorrect responses are called the distracters. The *Key or Keyed Response* is the option of a multiple-choice item that is considered the correct response. The *Plausible Distracters* are the incorrect responses that are common errors that do not answer the question. The distracter statements should include true statements that do not satisfy the requirements of the item posed which have similar content and include incorrect statements with common sense plausibility, therefore, appealing to candidates who are not fully knowledgeable. The following test item displays all of the components of a multiple-choice test item.

STEM	Which of the following organizations has established a standardized classification system for producing project manuals and to categorize construction field information?
PLAUSIBLE DISTRACTER	1. Associated General Contractors
KEYED RESPONSE	2. Construction Specifications Institute.
PLAUSIBLE DISTRACTER	3. Associated Builders and Contractors.
PLAUSIBLE DISTRACTER	4. Association for the Advancement of Cost Engineering.

Professional Testing Corporation's (2002) item writing manual titled, Item Developers Guide insists that "It is sometimes easier for new item writers to produce good items if they use the question form, since each of the options must then be an answer to the question asked in the stem" (p 4). The information below outlines the characteristics of a good stem, the guidelines for writing good item responses and the characteristics of plausible distracters.

What are the Characteristics of a Good Item Stem?

! **A good item stem must be clear, concise, straightforward and a complete question**.

! **A good stem contains one central idea which fits grammatically with the options.**

Ideally, the stem should be so complete and clear that a knowledgeable candidate would be able to respond to the item without even looking at the options. For example, consider the following:

Better Test Item	Poor Test Item
What effect does a back charge have and on which party?	A Back charge;
1. It increases the sub's price.	1. Affects the sub's price.
2. It decreases the sub's price. *	2. decreases the sub's price. *
3. It increases the Architect's price.	3. Affects the Architect's price.
4. It decreases the Architect's time.	4. decreases the Architect's time.

In the better item, the candidate knows that they are looking for the effect of a back charge and on which party. In the poor item the stem does not pose a problem, therefore, the stem is faulty, inadequate and incomplete and this poses a dilemma for the candidate. The candidate must read each response and then refer back to the stem to determine the correct response.

! **A good item stem is worded positively.**

Better Test Item	Poor Test Item
Which of the following are two phases in a project life cycle system?	A project's "life cycle" includes all of the following phases <u>EXCEPT</u>
1. Inflation and Forecasting. 2. Financing and Demolition. 3.* Conceptual and Completion. 4. Cost Control and Scheduling.	1. Conceptual. 2. Completion. 3. Operational. 4.* Forecasting.

! **Avoid negative phrasing in the stem**. In the rare case that negative phrasing is warranted, then capitalize and underline or bold face the negative term such as <u>NOT</u>, <u>EXCEPT</u>, <u>LEAST</u>, etc. The responses must be single words.

! **A good stem avoids the use of the pronouns “it”,“he”,“she”, and “you”.**

! **A good item stem avoids excessive verbiage.**

Excessive verbiage is where useless information is contained in the stem without any purpose.

Better Test Item	Poor Test Item
Which term below describes a climate with high temperatures and heavy rainfall? A. Desert. B. Tundra. C. Savanna. D.* Tropical rainforest.	High temperatures and heavy rainfall characterize a humid climate. People in this kind of climate usually complain of heavy perspiration. Even moderately warm days seem uncomfortable. Which climate is described? A. Desert. B. Tundra. C. Savanna. D.* Tropical rainforest.

! **A good stem includes all words that would have to be repeated in each option.**

Better Test Item	Poor Test Item
What temperature in Fahrenheit does ice start to form on water at sea level? 1. * 32 degrees. 2. 24 degrees. 3. 12 degrees. 4. 0 degrees	Ice forms on water when 1. * The temperature falls below 32 degrees Fahrenheit at sea level. 2. The temperature falls below 24 degrees Fahrenheit at sea level. 3. The temperature falls below 12 degrees Fahrenheit at sea level. 4. The temperature falls below 00 degrees Fahrenheit at sea level.

! **A good stem specifies the authority or standard upon which the correct option is based, if the item calls for a judgment.**

Better Test Item	Poor Test Item
According to the American Institute of Architects General Conditions A201 1997, How many days does the contractor have to submit a claim? 1. 7 2. 14 3. * 21 Article 4.3.2 4. 30	How many days does the contractor have to submit a claim? 1. 7 2. 14 3. 21 4. 30 Note: all could be correct. 30 days is for EJCDC documents.

! **A good stem focuses on important learning objectives and avoids testing trivia.**

Better Test Item	Poor Test Item
What legislation, passed by congress in 1935 established unfair labor practices against Owners or Contractors? 1. * National Labor Relations Act. 2. Labor- Management Relations Act. 3. Labor-Management Disclosure Act. 4. Davis-Bacon Prevailing Wages Act.	What does the Abbreviation NLRA mean? 1. * National Labor Relations Act. 2. National Labor Recovery Act. 3. National Labor Railroad Association. 4. National Labor Relations Association.

! **A good stem avoids over specific knowledge when developing the item.**

What is the <u>MOST</u> serious problem in the construction industry?

1. Safety
2. Shortage of crafts.
3. Education of craft personnel.
4. Education of upper management.

The question above is an example of a question that is so abstract that no consensus probably exists on the correct answer.

What are the Characteristics of Good Options?

! **Verify that all four responses are grammatically related to the stem**.

! **Place the responses in logical, numerical order or descending length.**

! **Ensure that the correct response is similar in length to the distracters**. If the options contain distracters that are short and imprecise and the correct response is long and fully qualified, candidates will quickly recognize and reject the distracters.

! **Avoid options that clue test-wise candidates**. Test-wiseness is considered any flaw in an item stem or the responses that clue a sophisticated test taker to eliminate or select the correct response. Case and Swanson (1996), identified grammatical cues, long correct responses, word repeats and convergence strategy as the most common flaws related to test-wise candidates. They also outlined the following issues related to test-wise and provided some guidelines for eliminating item flaws.

Grammatical cues. This happens when one or more of the distractors don't follow grammatically from the stem. Each response should read grammatically with the stem.

Long correct responses. The correct answer is longer, more specific and more complete than the other options.

Words repeats. A word or phrase is included in the stem and in the correct response.

The *convergence strategy* suggests that the correct answer includes the most elements in common with the other options. The underlining premise is that the correct response is the option that has the most in common with other options. This happens when the item writer develops the correct response first and derives options using part of the correct response as the distracters. The example below illustrates the convergence strategy.

What devices are the <u>most</u> common for writing a letter?

1. Pencil and Pen *
2. Pen and Marker.
3. Pencil and crayon.
4. Pencil and high lighter

The convergence question above has the word pencil appearing three times and the word pen appears twice. Therefore, a test-wise candidate will select A.

! **Avoid using absolute terms in the responses**.
In poor test items, options containing words such as *all, none, never, always,* are likely to be found in the distracters, while less definite terms such as *generally* and *often* are likely to be used in the correct response.

! **Avoid *"none of the above"* as a response**.
The reason for not using "none of the above" as a response is that a correct answer obviously exists and it should be used in the item.

! **Avoid *"all of the above" or "1 and 2 above" as a response***.
Since the examination directions specify that there is a single correct answer to each item, the use of all of the above violates the rule. If, you have multiple correct answers include them all in one response and create each distracter using the same number of incorrect responses.

! **Avoid overlapping responses.**

Better Test Item	Poor Test Item
What is the approximate weight of a cubic foot of standard concrete?	What is the approximate weight of a cubic foot of standard concrete?
A. 55 - 85 B. 90 - 100 C. 101 - 145 D.* 150 - 160	A. 50 - 75 pounds B. 71 - 110 pounds C.* 110 - 155 pounds D.* 151 - 160 pounds

The better test item uses ranges that do not overlap but they are similar weights for a cubic foot of other construction materials such as masonry block, masonry cement, Portland cement, lime and soil. The poor item above illustrates that there could be more than one correct answer or part of two responses are correct.

! **Avoid absurd responses.**
These are so highly implausible, that no test taker will choose them. The use of absurd responses makes guessing easier by reducing the number of plausible distracters in a test item. This can also be said about "all of the above" responses, "none of the above" responses, "I don't know responses and "a and b above" responses.

! **Avoid trying to be humorous**.
Responses containing humor can reduce the number of plausible distractors and make the item easier. The use of humorous detracts from the purpose of the test and it does little good. Therefore, it is a much safer practice to focus on the test specifications and avoid any humor.

What are the Characteristics of Plausible Distracters?

! **Use familiar and technically phrased distracters that do not answer the item.**

These appeal to candidates who lack the knowledge.

! **Use true statements that do not correctly answer the item.**
The distracter responses are all true statements but the distracters are irrelevant to the question being asked.

! **Make all distracters plausible which avoids guessing**.
A plausible distractor will look like a right answer to those candidates with a low degree of knowledge about the topic. Distracters must be plausible so that a sophisticated test taker who does not possess the knowledge needed to select the correct response would find all of the distracters just as attractive as the response that was correct.

Better Test Item	Poor Test Item
The vertical distance from the ground to the eaves is 16 feet. What is the proper horizontal distance for the ladder? 1. * 4 2. 8 3. 16 4. 20	The vertical distance from the ground to the eaves is 16 feet. What is the proper horizontal distance for the ladder? 1. 3 2.* 4 3. 5 4. 6

The distracters in the better test item above discriminates between a candidate that can determine the correct horizontal distance and the candidate that uses the incorrect formula. The plausible distracter of 8 is for candidates that assume that the formula is ½ of the vertical distance (16) which equals 8. The plausible distracter of 16 above is for candidates that assume a 45 degree angle with equal legs. The plausible distracter of 20 is for candidates that assume a right triangle. The correct answer is 1/4 of the vertical distance (16) which equals 4.

The distracters in the poor test item above allows the test taker to guess and it does not distinguish between a candidate that guessed correctly and a candidate that calculated the correct horizontal distance.

! **Use common calculation errors of candidates**. This scenario presents an introductory paragraph of the information and the criteria as shown below.

The plans call for you to install 500 Lineal Feet of 42 inch diameter, reinforced concrete pipe with gaskets for a sewer. The budgeted crew size, hourly wages and daily output are:

#	Crew Description	Hourly Wage
1	Crew Leader	$27.00
3	Pipe Layers	$21.50
1	Oiler	$18.00
1	Crane Operator	$25.50

#	Const Equipment	Daily Cost	Note: This information could be considered extraneous or irrelevant material if no questions refer to this information. This information came directly from the Means Crew Sizes section.
1	25 Ton Hyd Crane	$360.00	

Daily Output = 120 Lineal Feet per 8-hour day.

! **Show all calculations for each option and justify each plausible distracter**.

The Better Test Item uses incorrect calculations as plausible distracters.

Better Test Item	Poor Test Item
What is the Productivity Rate expressed in Workhours per Lineal Foot (Whr/LF)? 1. 0.27 2. * 0.40 3. 2.50 4. 4.17	What is the Productivity Rate expressed in Workhours per Lineal Foot (Whr/LF)? 1.* 0.40 2. 2.50 3. 32.0 4. 48.0

The *Calculations* in the Better test item above shows the calculation Responses with an additional option as shown below. This displays the process behind *Plausible Distracters*

1. 0.27 = 32 WORKHOURS/120 LF	Incorrectly calculated total Workhours as 32 /day
2. * 0.40 = 48 WORKHOURS/120 LF	This is the CORRECT response
3. 2.50 = 120 LF/48 WORKHOURS	Inverted the relationship which is incorrect
4. 4.17 = 500 LF/120 LF PER DAY	This is the calculation for Number of days
5. 3.75 = 120 LF/32 WORKHOURS	Inverted and used incorrect total Workhours

The poor test item response 3. is 4 workers times 8 hours per day = 32 Workhours per day.
The poor test item response 4. is 6 workers times 8 hours per day = 48 Workhours per day.

What is the Complete Item Writing Process for an Item Writer?

Author:	Ed Brayton			Date: 07/24/2005
Circle One:	Level 1 - Construction Fundamentals Exam			Level 2 - Construction Applications Exam
Spec #'s:	Roman	VI.	BUDGETING, COSTS & COST CONTROL	
	Alphabet	B.	Cost Control	
	Arabic	2.	Labor Costs	
Source				
	Means Cost Data Book, Crew Sizes			
Key Verb:	Calculate		Mental Behavior Category:	Problem Solving

Stem:	Using the budget crew information below,		
	Workers	Crew Descriptions	Hourly Wages
	1	Crew Leader	$27.00
	3	Pipe Layers	$21.50
	1	Oiler	$18.00
	1	Crane Operator	$25.50

Question	Generic Stem Question: What is the crew cost per day?		
* Correct	Responses or Calculations if appropriate:		
	Better Test Item	CALCULATIONS FOR THE BETTER TEST ITEM	Poor Test Item
1.	$ 368.00	4 workers x $92.00 per hour = $368.00	$ 368.00
2.	$ 736.00	1 Crew Leader x 8 =8 x $27.00/hour =$216.00	$ 410.00
		1 Pipe Layers x 8 = 8 x $21.50/hour =$172.00	
		1 Oiler x 8 = 8 x $18.00/hour = $144.00	
		1 Operator X 8 = 8 x 25.50.hour = $204.00	
3. *	$ 1,080.00*	$215 + 3 Pipe Layers x 8 =24 x $21.50/hour =$516.00 + $144 Oiler + $204 Operator	$ 536.00
4.	$2,944.00	4 x 8 =32 Workhours x $92.00/hour = $2,944.00	$1.080.00

If a *calculation* is involved, each distractor and the keyed response must show all calculations.

Summary Checklist of Multiple-choice Item-writing Guidelines

General Item-Writing Guidelines

! **Circle the test specifications Level 1 or Level 2**, Using the Level selected,

! **State the Roman Numeral Content Area Number.** **Required**
State the Alphabet Category Letter. **Required**
State the Arabic Number for the Subcategory. **Required**

! **Identify the Reference Source Utilized for the Test Item**
! **Focus on test items that a competent candidate will encounter in the workplace**.

! **Select the key verb item outcome from the mental behaviors classification system**.
Using the key verb, circle the Mental Behavior category you are trying to test.
Using the key verb, write a generic item stem which focuses on one important idea.

! **Avoid trick questions that lead to incorrect responses.**
These seven items were perceived as tricky.

Intentional. Trivial content. Stem includes window dressing.
Correct response discrimination. Multiple correct response.
Opposite principle. Highly ambiguous.

! **Avoid verbatim phrasing from a textbook.**

Guidelines for Writing a Good Item Stem

! **The stem must be clear, concise, straightforward and a complete question..**
! **The stem contains one central idea which fits grammatically with the options.**
! **The stem is worded positively.**
! **Avoid negative phrasing in the stem.**
! **Avoid the use of the pronouns “it”, “he”, “she”, and “you”.**
! **Avoid excessive verbiage in the stem**.
! **Include all words in the stem that would have to be repeated in each option**
! **Specify the authority or standard upon which the correct option is based upon in the stem, if the item calls for a judgment.**

! **Focus on important learning objectives and avoid testing trivia.**
! **Avoid over specific knowledge when writing an item.**

General Guidelines for Writing the Responses

! **Verify that all four responses are grammatically related to the stem.**

! **Place the responses in logical, numerical order or descending length.**

- **Ensure that the correct response is similar in length to the distracters.**
- **Avoid options that clue test-wise candidates.** These items are the most common flaws.

  Grammatical cues. Long correct responses.
  Words repeats. Convergence strategy.

- **Avoid using absolute terms**. *"All, never, always, absolutely or completely."*
- **Avoid *"none of the above"* as a response.**
- **Avoid *"all of the above" or "1 and 2" above as a response.***
- **Avoid overlapping responses**.
- **Avoid absurd responses.**
- **Avoid trying to be humorous**.

Guidelines for Writing Plausible Distracters

- **Use familiar and technically phrased distracters that do not answer the item.**
- **Use true statement that do not correctly answer the item**.
- **Make all distracters plausible to avoid guessing.**
- **Use common calculation errors of candidates**.
- **Show all calculations for each option and justify each plausible distractor.**

How Can an Item Writer Self Check Themselves to Ensure that an Item is Usable?

- Review the stem to ensure that it poses a problem and asks a question.

- Verify that one, and only one, of the four options is correct and that the other three distracters are unquestionably incorrect. If items ask for, "the MOST common" or "the LEAST common", etc. then these words must be Capitalized and underlined so that candidates will seek the BEST response to the item not merely an adequate response.

- If the stem asks "What if " be certain that the correct option is the only possible answer, otherwise candidates could argue the existence of other answers not provided. If there are other possible correct responses, of which the item includes only one, consider phrasing the stem in terms of "Which of the following". This acknowledges that there might be other acceptable responses, but the candidate is to consider only the options presented.

Item Writing Form

Author:			Date:
Circle One:	Level 1 - Construction Fundamentals Exam		Level 2 - Construction Applications Exam
Spec #'s:	Roman		
	Alphabet		
	Arabic		
Source			
Key Verb:		Mental Behavior Category:	
Stem:			
Question	Generic Stem Question		

* Correct	Responses or Calculations if appropriate:	
1.		
2.		
3.		
4.		

Haladyna's Mental Behavior Classification System

Mental Behavior	Key Verbs in Student Outcomes	Generic Item Shells (Stems)
Recall	Who, what, when, where, which	
Understanding	Define, demonstrate, describe, find, exemplify, explain, illustrate, list, listen, paraphrases, provide, show, tell	Which is the best definition of ? Which is the correct definition for ? Which is characteristic of? What is the main symptom of ? Which is the reason for ? Which is an example of? Which is the relationship between ? Which distinguishes ?
Problem Solving	Answer, compute, calculate, determine, find, figure out, locate, solve	What is the problem? What are aspects of the problem? Solve for x Find a short cut How would you solve the problem?
Evaluating	Analyze, appraise, assess, attack, classify, compare, conclude, contrast, critique, defend, differentiate, distinguish, evaluate, relate, synthesize, value; Then choose, decide, judge, select, most appropriate, most effective, best	Which is the most effective? What is the difference between ? What is a similarity between? Which of the following principles or procedures best applies? Describe the strengths of Critique the article using
Predicting	Anticipate, apply, conclude, deduct, induct, infer, hypothesize, predict, recommend, speculate, what happens, What if , then. *Deductive reasoning* infers unstated consequences from given principles and it creates a generalization from information. You are given a generalization and you are required to explain the evidence. It describes logical consequences. Deductive conclusions are absolute. *Inductive reasoning* infers unknown generalizations from observations. You are given the evidence and are required to derive the generalization.	What would happen if? What is the main consequence of ? What is the main cause of ? What is most likely to happen ? Based on the following principle, what prediction, conclusion, hypothesis can you draw? What will happen next? This involves the use of an absolute or probable principle to anticipate Based on the following facts or observations, what can you conclude? How likely is it that __ will occur?

Source: Adapted from Haladyna, Thomas M.. (1997). *Writing Test Items to Evaluate Higher Order Thinking*. Needham Heights, MA: Allyn and Bacon. (p 32).

What Is the Process after the Test Items Have Been Submitted?

After the multiple-choice item writing sessions are held each potential test item proceeds through a review process to ensure a valid, reliable and defensible examination. Each item is reviewed and revised by a committee of Subject Matter Experts (SME) which is lead by the testing agency. At this point, the cognitive behavior classification, the item content, and the source utilized are verified. Next, each item is reviewed for its ease of reading, relevance, and the technical quality. Along with this review the keyed response is verified by the SME group.

This process continues as each test item is professionally edited by an editor or an editorial staff using style and readability guidelines. Along with this review each test item goes through a bias sensitivity review. This review is conducted by the testing agency which focuses to eliminate potentially culturally biased or offensive words, phrases, and situations.

After all of these reviews are performed and each item is approved, then the Examination Committee and testing agency is assembled together to read and select the test items for a specific test according to the percentages derived from the test specification content or subject areas. Currently, this is done before each examination administration which is twice per year. Next, the testing agency assembles the Level 1 and the Level 2 examination for the specified test date.

After the administration of the test, the testing agency conducts a preliminary item analysis, then they gather certain members of the Examination Committee to review the preliminary item analysis and candidate comments to determine the final scoring for each Level and administration of the examination.

Where Should the Completed Test Items Be Sent?

You can send your test item to the American Institute of Constructors (AIC) Constructor Certification Commission office as follows.

Davin E. Hattaway, Executive Administrator
AIC Constructor Certification Commission
P.O. Box 26334
Alexandria, VA 22314
tel: 703.683-4999
fax: 703.683.5480
admin@aicnet.org