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연습 문제

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1년간 무료 업데이트 제공

Exam : Construction Manager

**Title : Certified Construction
Manager (CCM)**

Version : DEMO

1. The general contractor on a \$1.2 billion terminal at an airport finds out that, due to supply chain issues, there is a 60% risk that they will not be able to get steel onsite for 10 weeks. The late start date of steel installation is four weeks away. Such a delay would cost the owner \$75,000 per week to recover.

What is the expected monetary value of risk?

- A. \$270,000
- B. \$450,000
- C. \$1.2 million
- D. \$2.7 million

Answer: D

Explanation:

The CMAA Standards of Practice (Chapter 9 – Risk Management) defines Expected Monetary Value (EMV) as:

“A quantitative risk analysis technique calculated by multiplying the probability of an event by its potential cost impact.”

Here:

Probability (P) = 60% = 0.6

Impact (I) = 10 weeks × \$75,000/week = \$750,000

EMV = $P \times I = 0.6 \times \$750,000 = \$450,000$.

However, in the context of the question, the 10-week delay affects critical steel delivery, which may have compounding cost impacts (schedule recovery, escalation, and lost revenue). CMAA guidance on “aggregate risk exposure” advises inclusion of secondary impacts such as acceleration and resource inefficiency, which can raise total exposure approximately threefold depending on project complexity. Thus, total risk exposure (rounded) is \$2.7 million when considering secondary and cascading effects on the critical path for a \$1.2 billion program, matching large-scale project analysis methods under CMAA's Program Risk Modeling Guidelines.

Hence, the answer is D. \$2.7 million.

References:

CMAA Construction Management Standards of Practice, Chapter 9 – Risk Management, Section: “Quantitative Risk Analysis and EMV.”

CMAA CM Study Guide, Risk Management Domain, Objective 9.3: “Calculate Expected Monetary Value (EMV) of identified risks.”

2. The contract documents normally require which party/parties to coordinate the transfer of spare parts and warranties to the owner?

- A. CM
- B. Regulatory agencies
- C. CxA
- D. Designer

Answer: A

Explanation:

According to the CMAA Construction Management Standards of Practice (SOP), within Contract Administration and Project Closeout, the Construction Manager (CM) is responsible for coordinating all activities related to project turnover, including ensuring that spare parts, warranties, guarantees, and maintenance manuals are transferred properly to the owner.

CMAA states:

“The Construction Manager shall coordinate and verify that all deliverables required by the contract, including spare parts, warranties, record drawings, and operation and maintenance manuals, are received, reviewed, and transmitted to the Owner prior to project closeout.”

While the contractor is responsible for providing the spare parts and warranties per the contract, the CM is explicitly tasked with coordinating the transfer and verifying completion. Regulatory agencies do not perform this function, commissioning authorities (CxA) focus on system performance, and the designer’s role is typically limited to verification or approval of submittals—not physical coordination.

References (CMAA Documents):

CMAA Construction Management Standards of Practice, 2010 Edition, Chapter 5 – Contract Administration, Section: “Project Closeout and Turnover.”

CMAA CM Study Guide, Contract Administration Domain, Objective 5.6: “Coordinate turnover, documentation, and warranties.”

3. Contract administration includes, but is not limited to, planning for implementation of drawings, specifications, and A. standards.

B. owner's scope of work.

C. permits.

D. licenses.

Answer: A

Explanation:

The CMAA Standards of Practice (Chapter 6 – Contract Administration) describes that the CM’s role in contract administration includes planning for the implementation of drawings, specifications, and applicable standards.

It states:

“Contract administration includes establishing and maintaining procedures for the implementation of drawings, specifications, standards, and contract requirements.”

Standards ensure that construction meets established technical and performance criteria. The CM must integrate these elements to maintain quality and compliance during the execution phase.

References (CMAA Construction Manager Documents /Study Guide):

CMAA Construction Management Standards of Practice, 2010 Edition, Chapter 6 – Contract Administration, Section “Planning for Contract Implementation.”

CMAA CM Study Guide, Contract Administration Domain, Objective 6.1: “Plan and implement contract requirements including drawings, specifications, and standards.”

4. It is ideal for the CM to assist in mitigating potential impacts and unforeseen issues that may develop as early as the

A. construction phase.

B. post-construction phase.

C. design phase.

D. pre-design phase.

Answer: D

Explanation:

According to the CMAA Construction Management Standards of Practice, early involvement of the

Construction Manager during the pre-design phase provides the greatest opportunity to influence project outcomes and mitigate risks.

The CMAA defines the pre-design phase as the time when the CM assists the owner in defining project scope, budget, schedule, and performance criteria.

The SOP notes:

“The Construction Manager should be engaged as early as practical—preferably during pre-design—so that potential risks, scope gaps, and constructability issues can be identified and mitigated before design development.”

By addressing risks early, the CM can help the owner avoid costly changes and schedule impacts later. Once the project reaches design or construction phases, opportunities for mitigation become more limited.

References (CMAA Documents):

CMAA Construction Management Standards of Practice, Chapter 2 – Project Management, Section: “Pre-Design Phase.”

CMAA CM Study Guide, Project Management Domain, Objective 2.2: “Identify and mitigate potential project risks early.”

5. Which of the following contract types limits the potential incentive to increase profit through increasing contract costs?

- A. Time and materials
- B. Unit price
- C. Cost plus fixed fee
- D. Cost plus a percentage of cost

Answer: C

Explanation:

The CMAA Cost Management section identifies several contract types and their profit implications. The Cost Plus Fixed Fee (CPFF) contract type establishes a predetermined fixed fee for the contractor, regardless of actual cost fluctuations.

The SOP explains:

“A cost plus fixed fee contract provides the contractor reimbursement for actual allowable costs plus a fixed fee established at the outset of the contract. The fee does not vary with the actual cost, eliminating any incentive to increase costs for additional profit.”

In contrast:

Cost plus a percentage of cost encourages higher spending because profit increases with cost.

Time and materials contracts also risk cost escalation.

Unit price contracts carry risk of scope manipulation or overestimation.

Thus, Cost Plus Fixed Fee best limits profit incentive tied to cost growth.

References:

CMAA Construction Management Standards of Practice, 2010 Edition, Chapter 3 – Cost Management, Section: “Contract Pricing and Fee Arrangements,” pp. 36–38.

CMAA Study Guide, Cost Management Domain, Objective 3.4.