

ARE 5 PRACTICE PROBLEMS

5. A project architect is developing a project work plan for the coming year. The firm is organized into studios, and the project team includes the project architect, two designers, and a draftsman, with annual salaries and utilization rates as shown.

staff member	salary	utilization rate
project architect	\$100,000	40%
designer	\$60,000	60%
designer	\$60,000	60%
draftsman	\$45,000	80%

The project architect estimates that the studio will gross \$400,000 in annual revenue. The firm's break-even multiplier is 2.25. The actual annual revenue will exceed the estimated amount by what percentage?

- (A) ~~6%~~ 10%
- (B) ~~10%~~ 17%
- (C) 18%
- (D) 20%

6. Which of the following American Institute of Architects (AIA) documents is used to create a license to use computer-aided drafting (CAD) files and building information models (BIM)?

- (A) AIA Document C106, *Digital Data Licensing Agreement*
- (B) AIA Document E201, *Digital Data Protocol Exhibit*
- (C) AIA Document E203, *Building Information Modeling and Digital Data Exhibit*
- (D) AIA Document G808, *Project Data*

7. During preparation of construction drawings, the architect should coordinate with the structural engineer by

- (A) requiring the engineer to submit progress drawings when changes are made
- (B) conducting weekly meetings with the engineer and exchanging progress copies of drawings
- (C) holding conference calls between staff at both offices at times required by the work progress
- (D) submitting weekly written memos to the engineer describing the architectural requirements

8. An architect has been hired to design an addition to a building of historical significance, and the owner wishes to incorporate sustainable design technologies. Part of the project includes renovating and remodeling a portion of the existing building. The architect suggests that the owner retain the services of a historic preservation consultant. In order for the architect to make optimal use of the consultant's work, the owner should hire the consultant

- (A) as soon as possible
- (B) after schematic design work has been completed
- (C) after the design development phase
- (D) on an as-needed basis for technical questions

9. Which of the following are likely results of shortening the critical path of a construction schedule? (Choose the two that apply.)

- (A) Direct costs will increase.
- (B) Direct costs will decrease.
- (C) Overhead costs will increase.
- (D) Overhead costs will decrease.
- (E) Quality control will increase.
- (F) Activities on float paths will be delayed.

10. Which of the following influence the architect's design schedule? (Choose the four that apply.)

- (A) architect's available staff
- (B) client's decision-making and approval process
- (C) structural consultant's workload
- (D) size of the project
- (E) building code in effect in the project jurisdiction
- (F) owner's proposed construction timeframe

11. An architecture firm is commissioned to remodel a large warehouse building into a multiscreen cinema complex. During the pre-design phase, the architect tells the client that the existing structure must be reviewed and surveyed by the consultants on the design team. Which consultant should evaluate the building first?

- (A) civil engineer
- (B) structural engineer
- (C) mechanical engineer
- (D) electrical engineer

Solutions

1. The guidelines for sustainable design practice are discussed in AIA Document B101, Sec. 3.2, Subparagraph 3.2.3 and Subparagraph 3.2.5.1. These guidelines state that the architect must consider environmentally responsible design alternatives as part of basic services and assess the feasibility of incorporating them in the schematic design phase. The impact of these strategies on the project program, schedule, and budgets should be discussed with the owner. The owner then determines the type and extent of the sustainable technologies that are to be incorporated into the project design.

The sustainable strategies that the owner can choose to accept or eliminate are only those that go above and beyond the requirements for code compliance. Some approaches that improve the building's energy efficiency and sustainability are also mandatory code requirements. For example, if the local jurisdiction requires compliance with a standard to satisfy the requirements of the energy code, the owner may not disregard this requirement. In this case, the architect or the architect's consultant should not consider designing for compliance to be an additional service. However, if the owner decides to incorporate other sustainable design approaches that are not normally included or are not required for local code compliance, it is appropriate for the architect to provide this work as an additional service and indicate this as such in AIA Document B101, Article 4, Additional Services.

The answer is (C).

2. The CPM is a planning tool used to develop a schedule for large projects that require the participation of many team members. A CPM chart differs from other types of planning tools, such as a full wall schedule, milestone chart, or Gantt chart, because it considers the interdependence of activities.

The answer is (C).

3. The agreement requires the architect to carry professional liability insurance and other types of insurance, and it sets the agreed-upon minimums. This agreement does not impose specific insurance requirements on the owner, but it encourages the owner to seek appropriate legal, accounting, and insurance advice. The architect holds the rights to the instruments of services. The owner is granted a nonexclusive license to use these documents for this project only. Safety procedures and equipment at the project site are the responsibility of the contractor.

AIA Document B101, Article 5, defines the owner's responsibilities. Subparagraph 5.7 requires the owner to

provide tests, inspections, and reports required by law or the contract documents.

The answer is (D).

4. The full wall schedule technique requires everyone on the project to work on developing the project schedule. This facilitates discussion about work tasks, responsibilities, and project deadlines. Participation of all team members is encouraged, and as a result, everyone has a vested interest in the final schedule.

The answer is (B).

5. Calculate direct labor costs using the information provided about the employees' salaries and their utilization rates. The utilization rate is the percentage of work time that is billable to projects. It is clearest to put this in table format.

staff member	salary	utilization rate	direct labor cost
project architect	\$100,000	40%	\$40,000
designer	\$60,000	60%	\$36,000
designer	\$60,000	60%	\$36,000
draftsman	\$45,000	80%	\$36,000
total	\$265,000		\$148,000

Determine the amount of profit that will be earned if the department brings in revenue of \$400,000 by calculating the break-even amount using the multiplier and the table's direct labor costs.

$$\begin{aligned} \text{break-even amount} &= (\text{direct labor costs})(\text{multiplier}) \\ &= (\$148,000)(2.25) \\ &= \$333,000 \end{aligned}$$

Determine the amount of actual revenue earned.

$$\begin{aligned} \text{actual revenue} &= \text{estimated revenue} - \text{break-even amount} \\ &= \$400,000 - \$333,000 \\ &= \$67,000 \end{aligned}$$

Finally, calculate the percentage.

$$\begin{aligned} \text{percentage} &= \frac{\text{actual revenue}}{\text{estimated revenue}} \\ &= \frac{\$67,000}{\$400,000} \\ &= 16.7\% \quad (17\%) \end{aligned}$$

The answer is (C).

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applying steadily increasing loads on a platform placed on the site.

The answer is (A).

11. A library or community hall is classified as an A-3 (Assembly) occupancy according to the *International Building Code* (IBC). If fixed seating is provided, the number of occupants equals the number of seats. Where no fixed seating is provided, the designer must refer to IBC Table 1004.1.1 to calculate the occupancy of a space.

The maximum occupancy of the space is the greatest possible number of occupants as calculated using the IBC table. If tables and chairs are provided, each occupant is allocated 15 ft². If the room will be arranged with rows of seating, each person occupies 7 ft². If occupants are standing, each is allocated 5 ft² of standing space.

The usage that allocates the least space per occupant will give the greatest occupancy, so dividing the area of the room by 5 ft² gives in the maximum occupancy of this space.

$$\begin{aligned} (30 \text{ ft})(35 \text{ ft}) &= 1050 \text{ ft}^2 \\ \frac{1050 \text{ ft}^2}{5 \frac{\text{ft}^2}{\text{occupant}}} &= 210 \text{ occupants} \end{aligned}$$

The answer is (D).

12. When a building design exceeds the maximum height allowance and the building height cannot be reduced, the owner should apply for a variance. A variance is an allowed deviation from zoning regulations. They are often granted where it is impossible or difficult to meet a zoning requirement or where a zoning ordinance does not completely cover unusual conditions.

A conditional use permit is given by a city or zoning jurisdiction to allow, if certain conditions are met, an otherwise prohibited use. This would not be appropriate for a situation where the allowed building height was exceeded.

An easement is the right to use a portion of land owned by another for a specific purpose.

A planned unit development (PUD) is a planning tool for large tracts of land that gives a developer discretion in how the land is developed. Aspects of the plan must comply with standards and restrictions determined by the local planning agency.

The answer is (D).

13. A silt fence is a temporary construction designed to filter water runoff from a construction site and trap

sediment before it is washed into drains or nearby bodies of water.

A bioswale is a shallow ditch lined with grass or other ground cover. Like a silt fence, it is designed to slow storm runoff and remove sediments, but it is a permanent construction. Riprap is rock along a watercourse or drainage area designed to prevent erosion. Screen grating would not prevent sediment runoff.

The answer is (D).

14. Zoning regulations typically govern the minimum number of parking and loading spaces required on a site. This should be the first requirement that the architect researches. The *ADA/ABA Accessibility Guidelines* give requirements for the number, size, and configuration of accessible spaces, but this information can only be determined after the total number of parking spaces is established. Although not common, there may be additional requirements in covenants, but these would be determined after zoning regulations were determined. The building code in effect within a jurisdiction does not determine the required number of parking spaces.

The answer is (D).

15. Although zoning setbacks may indirectly influence building height, they have the least effect of the four answer choices. FARs limit the total gross buildable area based on lot size, but when the maximum buildable area is placed within the restriction of zoning setbacks, the building height is thus determined. Bulk plane restrictions limit the area beyond which a building can pass, which often limits the total height.

In the building codes, a building's occupancy group and construction type determine the maximum building area, the maximum height in feet, and the maximum number of stories.

The answer is (D).

C

16. Exterior material types are not regulated by zoning ordinances, though they may be governed by covenants, development restrictions, and to some extent by building codes. Zoning ordinances do not regulate either minimum or maximum window area.

The answer is (A), (C), (D), and (F).

17. Setbacks are established by the zoning code of a city or county. Zoning controls the various aspects of land use, including allowable uses, the amount of land that can be covered with buildings, bulk of structures, setback distances, and parking and loading space requirements.

The answer is (B).

Solutions

1. Even though the nearest water line is 300 ft away, the best recommendation would be to use city water, where the quality and quantity are known and a long-term supply is assured. Although nearby property owners might or might not be willing to share the cost, the owner still would be best advised to extend the line.

Drilling a test bore could help determine the depth, potential yield, and water quality, but that would cost almost as much as drilling a well.

Petitioning the city to extend the line would be time-consuming and probably not successful if the city had already decided against it.

Asking nearby property owners who use wells about their experience would yield useful information, but even if the cost and water quality were acceptable, extending the municipal line would still be the preferred course of action.

The answer is (A).

2. A **core** is the focus of a district that may be perceived as a symbol of that part of the city. The **core** is often located at the junction of primary paths, or it could be an element or feature that influences the rest of the area. For example, a **core** might be a large open air market, a baseball stadium, or a street with lots of shops and restaurants. A **core** attracts people to the area, is served by the major transportation paths, and is the first image that most people associate with that part of the city.

The Image of the City discusses the legibility of cities and ways to “read” them. It also focuses on the mental images of cities that people use to find their way. There are five elements in Lynch’s city; in Lynch’s words, these are

- *paths*: “channels along which the observer customarily, occasionally, or potentially moves”
- *edges*: “linear elements not used or considered paths by the observer”
- *districts*: “sections of the city which the observer mentally enters ‘inside of’ and which are recognizable as having some common, identifying character”
- *nodes*: “points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling”
- *landmarks*: “another type of point reference, but in this case, the observer does not enter within them, they are external”

The answer is (D).

3. A vegetated roof is a roofing system that consists of a layer of plants and soil contained within an impermeable plastic liner on top of the structural roof assembly. Captured rainwater is used to irrigate the plants, and the moisture is released back into the atmosphere through evapotranspiration. Because the rainwater is used for irrigation of the plants on the roof, this technique reduces the amount of water that can be harvested for other non-potable uses.

A vegetated roof reduces the impervious surface area on a site; as the depth of the pan holding the soil and plants increases, the runoff coefficient of the surface decreases. Garden roofs have the added advantage of minimizing heat island effects. The roofs may be designed as active gardens requiring tending and watering, or may contain plants that require little to no maintenance. Generally, the lifespan of a vegetated roof is longer and overall maintenance costs are less than would be incurred with a conventional roof system because the roofing membrane is protected from ultraviolet radiation by the layers of organic material.

The answer is (A), (B), (D), and (E).

4. Designing a taller building with a smaller footprint to minimize site disturbance is the best approach to development on a previously undisturbed, or greenfield, site. A smaller footprint results in less area of impervious surfaces (which minimizes runoff) and limits the disturbance to existing landscaping and wildlife habitats. A smaller footprint generally results in a more energy- and resource-efficient building as well, with lower long-term maintenance costs.

The answer is (A).

5. The floor area ratio (FAR) is the total floor area of the building divided by the total site area. Based on the given building site, the total site area is 80,000 ft². The total floor area of the buildings in each option is 240,000 ft², so all options have a FAR of 3.0.

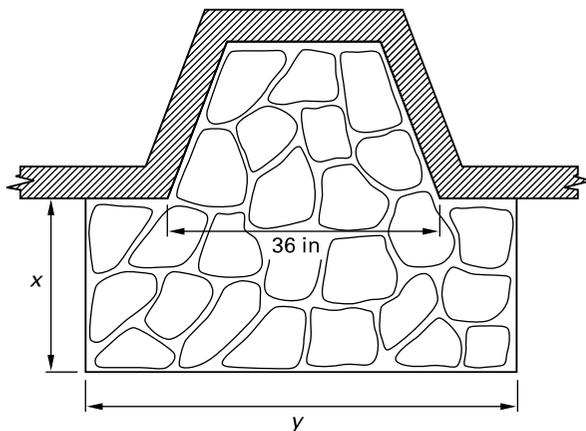
For sustainable design, the footprint of the building should be minimized to reduce disturbance of the natural landscaping and to minimize the impervious area. Although not part of the question, the parking, walks, grading, and other site development should also be minimized.

The answer is (D).

6. To maintain the continuity of the public space enclosure defined by the other buildings, an architect should be most sensitive to the recess line. In urban site planning, the recess line is the top of the full-width plane of a

47 The Project Manual and Specifications

1. In the hearth shown, the height of the fireplace opening is 24 in.



What are the minimum dimensions permitted for the hearth?

- (A) $x = 16$ in, $y = 48$ in 52
- (B) $x = 16$ in, $y = 52$ in
- (C) $x = 20$ in, $y = 48$ in 60
- (D) $x = 20$ in, $y = 52$ in

2. An architect is designing an addition to a high school to house a new gym and locker rooms. The architect plans to construct the exterior walls with concrete masonry units and apply an exterior insulation and finish system (EIFS) over the block. The new gym will be located adjacent to

the school's baseball field. To take advantage of the material's insulative properties and provide the best impact resistance to avoid dents from fly balls, which type of EIFS should be specified?

- (A) polymer based (PB)
- (B) poly modified (PM)
- (C) mineral based (MB)
- (D) expanded polystyrene (EPS)

3. Typical 4 in by 4 in ceramic tiles used as wallcovering in an office building's restrooms should be specified as

- (A) vitreous
- (B) semivitreous
- (C) nonvitreous
- (D) impervious

4. Which statement concerning fire-rated door assemblies is correct?

- (A) Hinges must always be the ball-bearing type.
- (B) Under some circumstances a closer is not needed.
- (C) Labeling is required for the door only.
- (D) The maximum width is 3 ft 0 in.

Solutions

1. According to the *International Building Code* (IBC), the minimum depth (x) required for a hearth is 16 in from the face of the fireplace. However, if the fireplace opening is 6 ft² or greater, the requirement is increased to 20 in. The opening of the fireplace shown is 3 ft × 2 ft or 6 ft².

The hearth must extend at least 8 in on either side of the fireplace opening, so the width of the hearth must be

$$36 \text{ in} + 8 \text{ in} + 8 \text{ in} = 52 \text{ in}$$

The answer is (D).

2. Polymer-modified (PM) mineral-based systems have high impact resistance and provide good insulation. They consist of a base and finish coat of synthetic stucco applied over extruded polystyrene (XPS) insulation board.

Polymer based (PB) systems are made up of a very thin base coat of portland cement and polymer over fiberglass mesh with a thin finish coat of polymer-based synthetic stucco over expanded polystyrene (EPS) insulation board. They are lighter in weight than PM systems, but because their plaster coats are so thin, they do not resist impact well.

Mineral based (MB) systems are basically conventional three-coat portland cement stucco systems. They are very impact resistant, but since the stucco is not applied over an insulation board, the system does not offer the insulation of PB and PM systems.

The answer is (B).

3. For a commercial toilet room, it is best to use impervious tile to withstand moisture and harsh chemical cleaners. Vitrification is a process of applying heat to a tile to fuse the material and make it denser. Denser tile permits less water to be absorbed. Specifying the level of vitrification is a way of classifying tile based upon its moisture absorption rate.

nonvitreous	7% to 15% absorption
semivitreous	3% to 7% absorption
vitreous	0.05% to 3% absorption
impervious	almost no absorption (less than 0.05%)

The answer is (D).

4. Ball-bearing hinges are always required for fire-rated doors. The other statements are incorrect.

The answer is (A).

5. The Gypsum Association publishes *Recommended Levels of Gypsum Board Finish*, which gives six levels of finish. One requirement for these levels is the number of coats of

joint compound used. The levels are 0, 1, 2, 3, 4, and 5. Level 0 requires no taping, finish, or accessories, while Level 5 requires three coats of joint compound over joints and fastener heads, as well as a final skim coat over the entire surface of the wall.

The answer is (B).

6. Firestops are materials or systems of materials that are used to seal penetrations through fire walls or smoke barriers. They are always noncombustible and may be factory built or constructed in the field. Depending on the wall type and application, mortar, mineral wool, or silicone foam would be acceptable for use as a firestop.

Draftstops also prevent the passage of fire and smoke but can be made of combustible materials such as treated wood blocking. They are placed between floors and at concealed spaces.

The answer is (C).

7. Polyurethane sealant, either one-part or two-part, provides excellent resistance to weather and is capable of 25% to 50% movement. It can span the wide joints typical of precast concrete, is available in colors, and can be painted.

Acrylics are unsuitable for this situation because of their limited potential for joint movement and their inability to fill the large-width joints that are typical of precast concrete. Butyls are unsuitable because of their limited joint movement and because they are only available in darker colors. They are generally used for areas under water. Latex sealants also have limited joint movement capability and are typically used for joints with no expected movement, such as those around door and window frames.

The answer is (D).

8. Electronic ballasts have many advantages over conventional ballasts. Many annoyances associated with fluorescent lamps, such as humming and flickering, are greatly reduced or eliminated with electronic ballasts. Electronic ballasts permit lamps to be operated at a wider range of temperatures—down to about 0°F—and let lamps be dimmed more easily and economically. In addition, the ballast itself is smaller and lighter in weight and more energy efficient. Existing fixtures with conventional ballasts can be retrofitted with electronic ballasts to realize the advantages of newer technology.

The answer is (A) and (E).

9. Degree days are calculated by comparing the base temperature—in this case, 65°F—to the average temperature on a specific date in a specific location. If the day's average temperature is less than 65°F, subtract the average temperature from the base temperature to determine the number

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intended as an adjunct to the main church, so the pedestrian access between the two facilities should be as direct, safe, and comfortable as possible. In the present configuration, people would have to squeeze between parked cars to get to the lobby entry. This situation could be improved by creating a walkway extension between parking spaces and providing curb ramps up and down to the drive.

The answer is (B).

8. Option (A) would extend the construction farther to the east than the other options, creating a more expensive configuration. This plan also creates an awkward edge for the funeral procession parking and drive. Option (B) is acceptable for cost and funeral access, but it unnecessarily extends construction further east than it needs to be. Option (C) would make access for funerals very difficult because the chapel is located on the west side of the addition.

Option (D) minimizes the distance of expansion to the east and still provides access on the east side of the building for funeral processions by locating the chapel on the east side, oriented with the long dimension north-south. The office, robing room, and mechanical room are similarly oriented on the west side of the addition. This plan uses a simple block layout, which minimizes foundation and structural costs.

The answer is (D).

9. The low slope roof of option (A) prevents placing windows on the west side and the extension of the south gable prevents any windows being used on the south end of the chapel roof. Option (C) also prevents any fenestration on the south end of the gable portion of the chapel. While option (D) may allow for windows on all four sides of the chapel, the use of a gable roof over the low ceiling spaces visually competes with the vaulted ceiling over the chapel, diminishing its importance and making the building look somewhat industrial. Option (B) best shows the location of the chapel from the exterior and provides opportunities for window locations on the sides as well as at both ends of gable of the chapel. In addition, the peak of the gable is higher, creating greater emphasis and making it more visible from the south over the ceiling of the activity room.

The answer is (B).

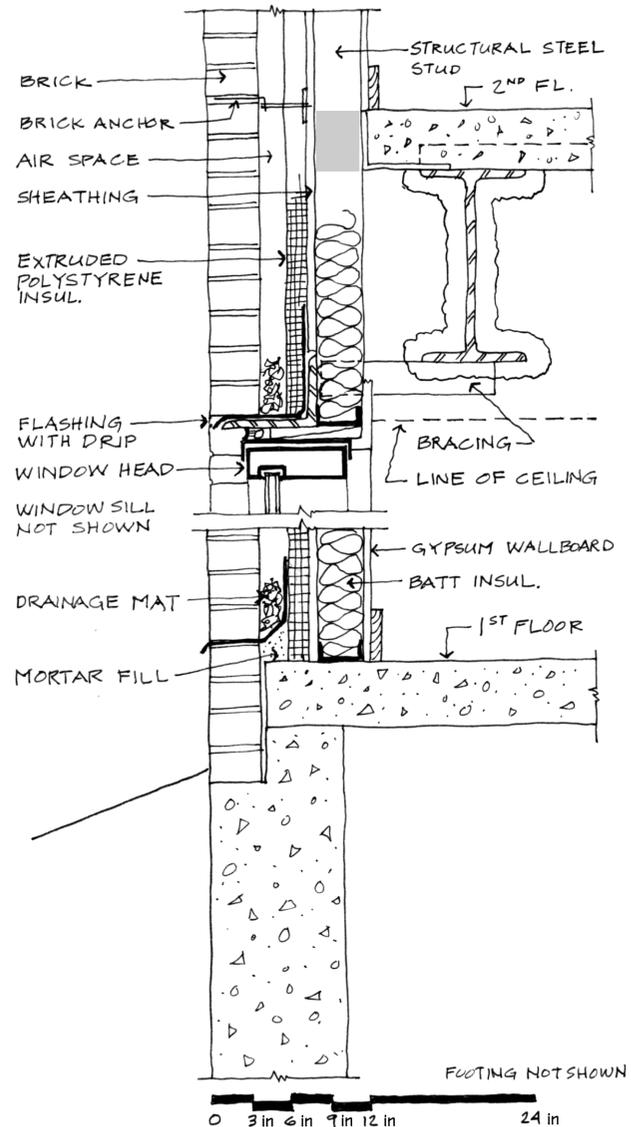
10. The corridor is in a good location as shown, allowing access to all adjacent rooms and providing two exits from the lobby to the outside. The funeral entrance at the front of the chapel allows for easy access to hearses. Moving it further south would conflict with the seating in the chapel. The activity room needs to be sized as shown to allow direct access from the lobby. The ramp from the accessible parking cannot encroach into the parking spaces. It should be moved to the east with the sidewalk widened as necessary.

The answer is (C).

11. Find the required insulation value in Resource 4.5. For a metal-framed building in climate zone 5, walls above grade must have an R-13 value for the batt insulation plus an R-7.5ci value for continuous insulation. Resource 4.5 shows that the continuous insulation is extruded polystyrene. According to Resource 4.5, extruded polystyrene has an R-value of 5.0. Therefore, for an R-7.5 value the insulation must be 1½ in thick.

The answer is 1½ in.

12. Safing insulation must be placed between the edge of the second floor slab and the sheathing, within the stud space. This prevents the spread of fire and smoke between the floors. The shaded area indicates the margin of error for placing the hot spot marker.



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architect or structural engineer. How should the architect initiate this change?

- (A) Revise the shop drawings to indicate the new column location and associated framing changes and return the submittal to the general contractor marked “Approved as Noted.”
- (B) Issue a proposal to the owner for additional design services, and notify the contractor of the pending change.
- (C) Consult with the general contractor to establish the cost increase.
- (D) Consult with the steel fabricator and supplier to determine the schedule delay.

6. Just before construction is to begin on an office building, an architect receives a request from the owner to add a loading dock to the building. The additional work will extend the construction time by three months and will cost an additional \$500,000. Who must approve the change order(s)?

- (A) The owner must approve a change order issued by the architect.
- (B) The owner must approve a change order issued by the architect and signed by the contractor.
- (C) The owner and contractor must approve a change order issued by the architect.
- (D) The contractor must approve change orders issued by the architect and owner.

B101

7. According to American Institute of Architects (AIA) Document ~~A101~~, *Standard Form of Agreement between Owner and Architect*, which of the following statements regarding construction observations is correct?

- (A) The architect visits the job site only at the beginning and end of construction.
- (B) The architect issues an observation report to the owner after each visit.
- (C) The architect is responsible for confirming that safety equipment is used.
- (D) The architect creates a list of items that have been found incomplete.

8. Which statement describes the architect’s responsibility relative to the project schedule?

- (A) The architect approves the schedule prepared by the general contractor.
- (B) The architect monitors the progress of the work against the project schedule prepared by the contractor.
- (C) The architect enforces the schedule.
- (D) The architect develops the schedule for the project.

9. An architect is working on a small retail project in a city that has adopted the *International Building Code* (IBC). The owner’s agreement with the contractor includes American Institute of Architects (AIA) Document A201, *General Conditions of the Contract for Construction*. During a site visit, the architect discovers that an exterior exit door has been installed backwards, so that the door swings in. The door is shown swinging out on the drawings. Which of the following is an appropriate response from the architect?

- (A) Reject the work and instruct the contractor to comply with the requirements of the construction documents.
- (B) Revise the drawing and send it to the code official with an addendum to the approved documents stating that the door is no longer an exit door.
- (C) Advise the owners that they may choose to accept the nonconforming work and leave the door in place in exchange for a credit from the contractor.
- (D) Instruct the contractor to remove the existing door and frame, and order a new door and frame.

10. A contractor installs drywall before the owner’s audiovisual system installer has an opportunity to visit the site to review the framing. After inspection on site, the installer contacts the architect and expresses concern that the blocking has not been installed at the correct locations to support the television mounts in a conference room. The required blocking locations and sizes are shown on the contract documents. The architect requests that the drywall be removed in these areas to confirm the concealed construction before the televisions are installed. When the drywall is removed, the architect finds that the blocking has been installed in the correct locations, but it is not the size shown on the drawings and it is inadequate to support the weight of the audiovisual equipment. Who is

Solutions

1. Shop drawings are documents prepared to illustrate the details of a construction assembly or system that the construction team proposes to provide. In many cases, general contractors rely on their subcontractors or suppliers to prepare shop drawings because they will perform the fabrication and installation and they have the most detailed knowledge about the proposed system.

The shop drawings, along with product data and material samples, are sent to the general contractor for review and approval, and then they are forwarded to the architect. The architect (with the assistance of consultants) reviews the shop drawings to confirm that the intent of the project design is being followed.

Shop drawings are typically more detailed than other project drawings because they include information specific to the manufacturer's proposed system. The shop drawings show how a particular product or system will be integrated into the overall project. The architect would not show this level of detail on the construction documents because the supplier of the element may not be known at the time of design. The architect's drawings are intended to convey design intent, and the shop drawings are used to verify that the proposed system complies with the established requirements.

The answer is (A), (D), and (E).

2. During construction observation, definite lines of communication among the parties are established by American Institute of Architects (AIA) Document A201, *General Conditions of the Contract for Construction*. During this time, communications between the contractor and the architect's design consultants proceed through the architect.

The answer is (A).

3. Because construction has not begun, adjusting the location of a window by less than 8 in would be considered a minor change. There would be no change to the quantity of materials utilized and no change to the installation cost or time. The information regarding the change would be issued to the contractor and owner within an addendum, if the contract has not yet been signed, or a bulletin.

The answer is (D).

4. A change order allows a change that affects the project time or cost to be made. In this case, the owner does not want to revise the contract. The architect has no authority to revise the contract between the owner and the contractor. The architect may not make changes to shop drawings, especially if they were reviewed and approved before the change to the construction documents occurs.

The architect may issue a construction change directive to order a change in construction before the owner and contractor agree on cost or timeframe adjustments. As such, the owner can order the change without revising the contract, and the work can continue. The directive must be signed by the owner and architect. The costs and schedule are determined after the directive is issued.

The answer is (A).

5. The architect's first step should be to prepare an amendment to the owner-architect agreement. This design change has been initiated by the owner, and the architect is entitled to additional compensation for the revisions that will be required to move the column. When the amendment is approved by the owner, the architect may proceed with the design work.

The architect should notify the contractor that this change will be made so that construction work that may be affected by the change can be postponed.

Upon receipt of the revised scope of work and request for proposal from the architect, the contractor can prepare a proposal summarizing the cost of the work and the schedule modifications that will be necessary to make the change. The contractor must coordinate with subcontractors and suppliers to determine how the change will affect their schedules.

When the contractor's proposal is approved by the owner, the architect may prepare a change order to modify the construction contract.

The answer is (B).

6. A change order addresses modifications to the project that affect price, time or both. In this case, the change is requested by the owner. A proposal for the work would be solicited from the contractor, and when the owner and the contractor agree on a price, the architect would issue a change order. The change order must also be signed by the owner, contractor, and architect in order for the changes to be incorporated into the contract.

The answer is (B).

7. Construction evaluation services are not required by AIA Document ~~A101~~. The architect is not restricted from visiting the job site. The architect determines the frequency and time of visits to the job site depending on the complexity of the job. The observation allows the architect to determine work progress and monitor construction quality. It is not typical to visit at only the beginning and end of construction.

B101