

Chapter 31, question
14

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Test Bank

Question preview

Question

Calculate the number of heating degree days during the following two-week period in March in Williamsburg, Virginia. The base temperature is 65°F.

date	high	low	average
3/1	51°F	31°F	41°F
3/2	79°F	39°F	59°F
3/3	51°F	35°F	43°F
3/4	53°F	31°F	42°F
3/5	54°F	34°F	44°F
3/6	46°F	36°F	41°F
3/7	51°F	27°F	39°F
3/8	58°F	23°F	40°F
3/9	72°F	49°F	60°F
3/10	78°F	63°F	70°F
3/11	70°F	52°F	61°F
3/12	69°F	55°F	62°F
3/13	75°F	55°F	65°F
3/14	70°F	54°F	62°F

Answers

- (A) 179 heating degree days (°F)
- (B) 186 heating degree days (°F)
- (C) 230 heating degree days (°F)
- (D) 316 heating degree days (°F)

The answer is (B).

Solution

QUESTION DATA

Vendor

0000002299

Solving Time

Difficulty

easy

Quantitative?

Yes

Status

Active

Created On

01/19/2018 10:13:40 PM

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OTHER VERSIONS

DISCIPLINES

FE Civil

(/admin/questions/index?sfield=discipline&stext=Civil)

PE Mechanical: Machine Design and Materials
(/admin/questions/index?sfield=discipline&stext=Mechanical: Machine Design and Materials)

ARE Project Development and Documentation
(/admin/questions/index?sfield=discipline&stext=Project Development : Documentation)

KNOWLEDGE AREAS

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 of heating degree days; each degree of difference is equivalent to one degree day. If the temperature is at least 65°F, the quantity of heating degree days is 0; however, temperatures above 65°F are recorded as cooling degree days. If the temperature is 65°F, no degree days are recorded for that date. To determine the number of degree days in a specified period of time, simply add the number of degree days recorded for each date.

This problem asks specifically for heating degree days, which are calculated as follows.

date	heating degree days (°F)
3/1	$65 - 41 = 24$
3/2	$65 - 59 = 6$
3/3	$65 - 43 = 22$
3/4	$65 - 42 = 23$
3/5	$65 - 44 = 21$
3/6	$65 - 41 = 24$
3/7	$65 - 39 = 26$
3/8	$65 - 40 = 25$
3/9	$65 - 60 = 5$
3/10	$65 - 70 = 0$
3/11	$65 - 61 = 4$
3/12	$65 - 62 = 3$
3/13	$65 - 65 = 0$
3/14	<u> </u>
total	186

Construction Engineer
(/admin/questions/indexfield=area&stext=Construction Engineering)

Basic Engineering Practice
(/admin/questions/indexfield=area&stext=Basic Engineering Practice)

Project Manual and Specifications
(/admin/questions/indexfield=area&stext=Project Manual and Specifications)

PRODUCTS USED IN AR5PDDQB

Test Bank

Question preview

Question

Where should weep holes be located in a brick wall? (Choose the three that apply.)

Answers

- (A) at the lowest course of brick
- (B) above windows
- (C) above shelf angles
- (D) below window sills
- (E) under copings
- (F) every 15 ft vertically

The answer is (A)(B)(C).

Solution

Weep holes should be located at any location where water may accumulate within a multi-wythe, cavity, or veneer wall. The weep holes allow the water to drain or be wicked out of the wall cavity. Water tends to accumulate at the bottom of a wall or where any penetration through the wall creates a "shelf," such as above a window or at a steel angle. Both flashing and weep holes at 24 in on center, minimum, should be provided at each of the locations listed.

Weep holes are formed by placing short pieces of rope or plastic units in the mortar joint as it is being laid. The spacer is then removed after the mortar hardens, leaving a small hole. Alternatively, some masons choose to simply leave a portion of the bed joint unmortared. Either way, the opening gives water a way to escape from the wall assembly and helps to prevent condensation from accumulating within.

QUESTION DATA

Vendor

0000002419

Solving Time**Difficulty**

easy

Quantitative?

No

Status**Active****Created On**

01/19/2018 10:21:44 PM

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OTHER VERSIONS

DISCIPLINES

ARE Project Planning Design
 (/admin/questions/index?sfield=discipline&stext=Project Planning and Design)

KNOWLEDGE AREAS

Building Systems, Materials, and Assemblies
 (/admin/questions/index?sfield=area&stext=Building Systems, Materials, and Assemblies)

PRODUCTS USED IN

AR5PPDQB

Test Bank

Question preview

Question

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

Answers

- (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

The answer is (A)(B)(D)(F).

Solution

The architect does not have direct control over the consultants' workload or ability to complete a given job at a specific time. The building code in effect at the location of the project would not affect the schedule for design or for construction.

The design schedule is impacted by the size and complexity of the project, the number of people available to work on the project, and how quickly the client can make required decisions and approve the architect's work during the various stages of the design. In addition, the abilities and design methodology of the architect's team can affect the time it takes to produce a job. The owner's proposed construction timeframe can suggest a deadline for the design work, but the architect must determine if the owner's projection is realistic.

QUESTION DATA

Vendor

0000000423

Solving Time**Difficulty**

easy

Quantitative?

No

Status

Active

Created On

01/19/2018 10:17:28 PM

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OTHER VERSIONS**DISCIPLINES****FE Civil**

(/admin/questions/index?sfield=discipline&stext:Civil)

FE Industrial and Systems

(/admin/questions/index?sfield=discipline&stext:Industrial and Systems)

PE Mechanical: Machine

Design and Materials
(/admin/questions/index?sfield=discipline&stext:Mechanical: Machine Design and Materials)

PE Civil: Construction

(/admin/questions/index?sfield=discipline&stext:Civil: Construction)

Test Bank

Question preview

Question

Which of the following variables has the greatest impact on a bid?

Answers

- (A) contractor's profit margin
- (B) influences of the construction marketplace
- (C) ~~prices received from subcontractors~~
- (D) ~~subcontract bids~~

The answer is (C).

Solution

Labor and materials, by far, have the biggest influence on the cost of a job because they represent about 80% of the cost. Labor and materials costs influence the amount of subcontractors' bids. Profit tends to be based on a percentage of the total project construction cost, and market influences do not have as great an effect on overall costs as the raw costs of the labor and materials required to construct the project.

QUESTION DATA

Vendor

0000001940

Solving Time**Difficulty**

easy

Quantitative?

No

Status

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DISCIPLINES**FE Civil**

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Civil)

PE Civil: Construction

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Civil: Construction)

PE Civil: Geotechnical

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Civil: Geotechnical)

PE Civil: Structural

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Chapter 46, question
10

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Test Bank

Question preview

Question

In a full set of construction drawings, the mechanical engineering drawings are typically placed

Answers

- (A) after the civil engineering drawings and before the architectural drawings
- (B) immediately after the architectural drawings
- (C) after the structural engineering drawings and before the electrical drawings
- (D) after the electrical drawings

The answer is (C).

Solution

The normal sequence of drawings in a full set of drawings is as follows: site drawings, then civil engineering drawings, followed by ~~architectural, structural,~~ plumbing ~~(if not included in mechanical),~~ mechanical, and electrical drawings.

QUESTION DATA

Vendor

0000001876

Solving Time

Difficulty

easy

Quantitative?

No

Status

Active

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01/19/2018 10:13:37

PM

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OTHER VERSIONS

DISCIPLINES

FE Civil

(/admin/questions/index?sfield=discipline&stext=Civil)

ARE Project Development and Documentation

(/admin/questions/index?sfield=discipline&stext=Project Development : Documentation)

KNOWLEDGE AREAS

Construction Engineer

(/admin/questions/index?sfield=area&stext=Construction Engineering)

Construction Document

(/admin/questions/index)

Chapter 10, question
12

[Return to Questions \(/admin/questions/0?sfield=magento_id&stext=0000000367&sdka=&stype=&sdiff=\)](#)

Test Bank Question preview

Question

A small medical clinic is being planned for a suburban location on an open, level site. It is to include services of general practice, obstetrics/family planning, testing and laboratories and dental offices, along with medical offices and an administration area. All together the building will have a net area of about 70,000 ft². Access to the building is primarily by automobile. The group developing the project wants the facility to be a comfortable, friendly place that minimizes the anxiety of a visit to the doctor and that makes it as easy as possible to get around. It expects the venture to be successful and each department to grow as the catchment area grows.

In order to meet the goals of the client, which of the following design responses would be most appropriate? (Choose the four that apply.)

Answers

- (A) Group the waiting areas and the reception area together to encourage social interaction.
- (B) Specify furniture that is attached to the floor to maintain organized seating.
- (C) Base the size of the waiting rooms on a behavior setting where establishing territory should be encouraged.
- (D) Develop a different color scheme for each of the separate services.
- (E) Design a children's play area in one corner of waiting areas.
- (F) Arrange individual chair seating against walls and other objects so it faces room entries.

The answer is (C)(D)(E)(F).

Solution

Grouping the waiting areas and the reception area to encourage interaction would probably be the least desirable option for two reasons. People are usually a little nervous while waiting with strangers and prefer the option to avoid contact in sociofugal space. In addition, because there are different departments in a medium-sized facility, having everyone in one space would be inefficient as well as uncomfortable. One large waiting area would make people feel less at ease and therefore would be counterproductive to the client's goals. Seating that is attached to the floor would seem unfriendly and would not allow for a small amount of personalization or for two or more people waiting together to adjust positions to make the experience more comfortable.

Patients will feel more comfortable and be able to easily get around by considering a behavior setting that establishes territory, defining departments by color, offering a play area to keep children occupied, and arranging seating to view entries and maximize awareness of others in the space.

QUESTION DATA

Vendor

0000000367

Solving Time

Difficulty

easy

Quantitative?

No

Status

Active

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OTHER VERSIONS

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DISCIPLINES

ARE Programming and Analysis
(/admin/questions/index?sfield=discipline&stext=AR Programming and Analysis

KNOWLEDGE AREAS

Building Analysis and Programming
(/admin/questions/index?sfield=area&stext=Building Analysis and Programming)

PRODUCTS USED IN

AR5PAQB

Test Bank

Question preview

Question

The construction of a large general hospital is being planned for a neighborhood that lies between an outer edge of a downtown area and a medium- to high-density housing area. There are already smaller clinics and doctors' offices in the area. The following concerns have been addressed in the design of the hospital building. In presenting the project to the city planning board, which concern should the architect emphasize?

Answers

- (A) The proposed street closure, planned in order to expand the building site, will not affect traffic.
- (B) Sufficient parking will be made available on the project site.
- (C) The bulk of the building design will not block sunlight from the housing.
- (D) Sewer and water services will not have to be expanded to serve the building.

The answer is (B).

Solution

All these issues are important, but the architect wants to tailor the presentation toward the key concerns of the planning board and the community at large. In this type of neighborhood, parking already would be in short supply considering the number of downtown workers, housing, and the high-traffic needs of clinics and doctors' offices. Therefore, parking likely would be the most important concern to the community.

This problem requires an understanding of all the major elements of planning a project and their effect on transportation services, traffic, utilities, ecology, drainage, and aesthetics. ~~You may be asked questions about what types of drawings or other documentation could best show a proposed project in its neighborhood context. In general, know how the surroundings affect the project and how the project affects the surrounding community.~~

~~The following terms are important to know.~~

~~*catchment area:* The area surrounding a land development site, encompassing the population base that the development is meant to serve.~~

~~*contextualism:* The belief that new buildings should be designed to harmonize with other buildings and elements in the vicinity.~~

~~*demographics:* The statistical data of a population, such as age, income, and so forth.~~

~~*personal space (personal distance):* The subjective distance or area surrounding a person's body into which a person feels comfortable allowing others to intrude, depending on the situation. Psychologist Robert Sommer developed a theory that there are four distances of personal space, including intimate distance, personal distance, social distance, and public distance—all of which vary by culture and specific situation.~~

~~*planned unit development (PUD):* A large parcel of land, typically with a mix of uses, that has been designed and laid out according to principles approved by the local planning authority and often with citizen input. A PUD is commonly used to develop land in a way that ordinarily would not be allowed based on normal planning and zoning restrictions of a jurisdiction.~~

~~*proxemics:* A term coined by anthropologist Edward T. Hall and now used to describe the study of the spatial requirements of humans and the effects of population density on behavior, communication, and social interaction.~~

~~*superblock:* A large parcel of land designed to minimize the impact of the automobile on residential development in which access to interior lots is provided by cul-de-sacs branching from surrounding streets and providing one or more open spaces.~~

~~*tax base:* The object on which a tax is calculated. For example, property is the tax base of a property tax.~~

QUESTION DATA

Vendor

0000000195

Solving Time

Difficulty

easy

Quantitative?

No

Status

Active

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OTHER VERSIONS

DISCIPLINES

FE Civil

(/admin/questions/index?sfield=discipline&stext=FE Civil)

PE Mechanical: Machine Design and Materials

(/admin/questions/index?sfield=discipline&stext=PE Mechanical: Machine Design and Materials)

ARE Programming and Analysis

(/admin/questions/index?sfield=discipline&stext=AF Programming and Analysis)

ARE Project Planning and Design

(/admin/questions/index?sfield=discipline&stext=AF Project Planning and Design)

KNOWLEDGE AREAS

Construction Engineering

(/admin/questions/index?sfield=area&stext=Constru Engineering)

Test Bank Question

preview

Question

A house is being designed for a new development in a suburban location. The nearest water main is one block away, about 300 ft, and the city currently has no plans to extend the line in the near future. City and county regulations do permit the drilling of wells. What action should the architect recommend to the client regarding the water supply?

Answers

- (A) Estimate the cost of extending the municipal line, since the water quality is known and it would ensure a long-term supply. Consult with nearby property owners who plan to build in the area to see if they would be willing to share the cost of extending the line.
- (B) Drill a test bore to determine the depth, potential yield, and water quality of a well, and compare this information with the cost of extending the municipal line.
- (C) Assist the owner in petitioning the city to accelerate its plans for extending the water line to serve new development.
- (D) Consult with nearby property owners who use wells and with well drillers to estimate the depth and yield of wells in the area. Compare the estimated cost and feasibility of drilling with the feasibility of extending the municipal line at the owner's cost.

The answer is (A).

Solution

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 ~~would not be helpful as local regulations would not permit 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.

QUESTION DATA

Vendor

0000002177

Solving Time

Difficulty

easy

Quantitative?

No

Status

Active

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OTHER VERSIONS

DISCIPLINES

ARE Programming and Analysis

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KNOWLEDGE AREAS

Site Analysis and Programming
(/admin/questions/index?sfield=area&stext=Site Analysis and Programming)

PRODUCTS USED IN

AR5PAQB

Test Bank Question

preview

Question

In lateral load resisting systems, a steel frame is often used in conjunction with concrete shear walls. What type of load does each component of this system carry?

Answers

- (A) The steel frame carries most of the vertical gravity load, and the concrete shear walls carry the lateral load.
- (B) The steel frame carries the lateral load, and the concrete shear walls carry most of the vertical gravity load.
- (C) Both components carry the vertical and lateral loads equally.
- (D) The steel frame carries most of the vertical and lateral loads.

The answer is (A).

Solution

The steel frame carries most of the vertical gravity load, and the concrete shear walls carry the lateral load. This system is commonly used, and the concrete shear walls are often placed around the building's mechanical core, enclosing elevators and stairways. ~~The shear walls transmit the lateral forces to the foundation and must be continuous.~~

QUESTION DATA

Vendor

0000001657

Solving Time**Difficulty**

easy

Quantitative?

No

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OTHER VERSIONS**DISCIPLINES**

ARE Programming and Analysis

[\(/admin/questions/index?sfield=discipline&stext=ARE Programming and Analysis\)](#)

KNOWLEDGE AREAS

Building Analysis and Programming

[\(/admin/questions/index?sfield=area&stext=Buildir Analysis and Programming\)](#)

PRODUCTS USED IN

AR5PAQB

Chapter 10, question
16

[Return to Questions \(/admin/questions/0?sfield=magento_id&stext=0000000379&sdka=&stype=&sdiff=\)](/admin/questions/0?sfield=magento_id&stext=0000000379&sdka=&stype=&sdiff=)

Test Bank Question

preview

Question

A 50-year-old warehouse that shows no obvious signs of deterioration is to be remodeled as an office building. Which of the following areas should be most carefully evaluated at the start to help determine the project's feasibility? (Choose the four that apply.)

Answers

- (A) ceiling heights
- (B) fire protection systems
- (C) foundation
- (D) roof
- (E) structural framework
- (F) windows

The answer is (C)(D)(E)(F).

Solution

The foundation, roof, structural framework, and windows represent major components of a building. If they are inadequate or in poor condition, they could be too expensive to repair or replace while maintaining project feasibility.

~~The ceiling heights of a warehouse would be sufficient for an office. Fire protection systems would probably be nonexistent or would have to be upgraded in any event, so this would be less of an initial concern.~~

The ceiling heights required of a warehouse would be higher than those in an office and can be adjusted, if needed, without rendering the project infeasible. Fire protection systems in a 50-year-old warehouse are certain to be non-existent or not compliant with the new program, so it is a given that they would need to be updated for any project.

QUESTION DATA

Vendor

0000000379

Solving Time

Difficulty

easy

Quantitative?

No

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OTHER VERSIONS

DISCIPLINES

ARE Programming and Analysis

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KNOWLEDGE AREAS

Building Analysis and Programming

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PRODUCTS USED IN

AR5PAQB

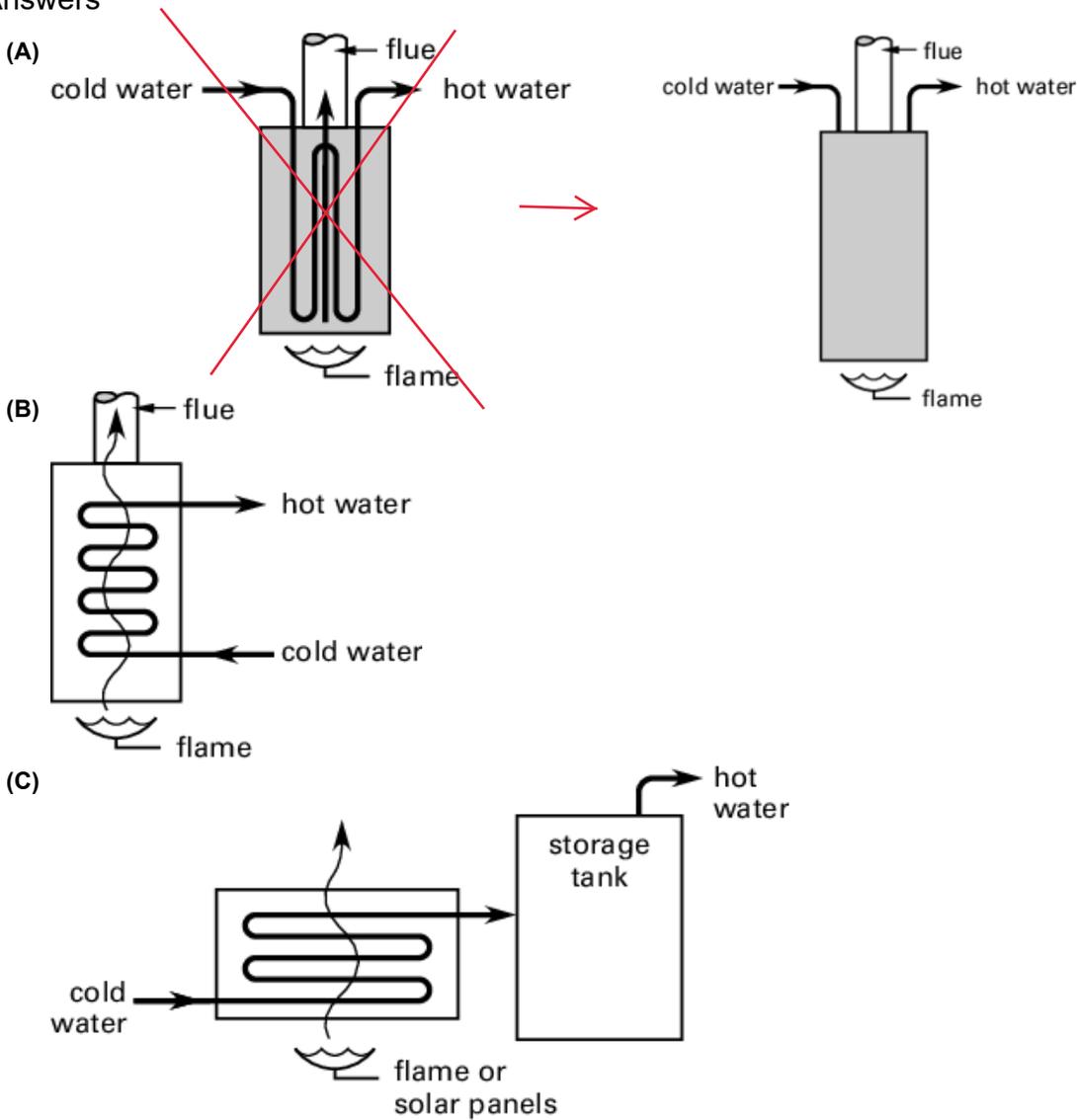
Test Bank

Question preview

Question

Which of the water heaters shown would be the least efficient for domestic use?

Answers



QUESTION DATA

Vendor

0000002164

Solving Time

Difficulty

easy

Quantitative?

No

Status

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OTHER VERSIONS

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DISCIPLINES

ARE Programming and

Analysis

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KNOWLEDGE AREAS

Building Analysis and

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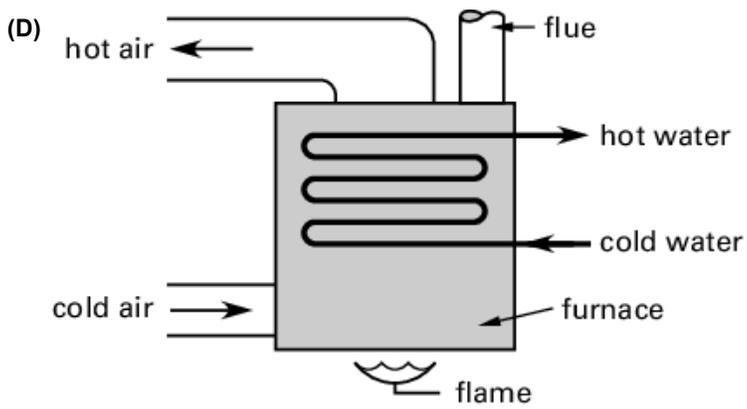
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Analysis and

Programming)

PRODUCTS USED IN

AR5PAQB



The answer is (D).

Solution

Option (D) illustrates an indirect, tankless type of water heating system. Water is heated in a furnace or boiler whose primary purpose is to provide space heating for the building. Therefore, to maintain desired quantities of hot water at all times, the furnace would have to operate during warm periods when space heating is not required. Generally, this type of heating system is used in conjunction with another source of heating for the water only. The furnace only provides hot water when it is operating to heat the building.

Test Bank

Question preview

Question

In order to build a commercial building in a residential neighborhood, what must be obtained first from the local zoning jurisdiction?

Answers

- (A) joint use easement
- (B) variance
- (C) conditional use permit
- (D) restrictive covenant

The answer is (C).

Solution

A joint use easement allows two or more property owners to share a common feature, such as a driveway. A variance is ~~a deviation from the zoning regulations~~. Restrictive covenants ~~are provisions that restrict the use of the property by the buyer~~. A conditional use permit (CUP) is a permit issued by the zoning jurisdiction for a proposed use that is not otherwise allowed in a particular zoning district. Of the options listed, only a CUP allows a commercial building to be built in a residential neighborhood.

QUESTION DATA

Vendor

0000018752

Solving Time**Difficulty**

easy

Quantitative?

No

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OTHER VERSIONS**DISCIPLINES**

FE Civil

(/admin/questions/index?sfield=discipline&stext=Civil)

PE Mechanical: Mach

Design and Materials

(/admin/questions/index?sfield=discipline&stext=

Mechanical: Machine Design and Materials)

ARE Project Manager

(/admin/questions/index?sfield=discipline&stext=

Project Management)

KNOWLEDGE AREAS

Construction Engineer

(/admin/questions/index

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Test Bank

Question preview

Question

The maximum allowable floor area of a building is primarily determined by the

Answers

- (A) city planning board
- (B) *International Building Code* (IBC)
- (C) *Life Safety Code*
- (D) zoning ordinance

The answer is (D).

Solution

 A local city planning board may have requirements for building sizes, but the requirements are not a primary determinant. The IBC limits the maximum allowable floor area of a building based on occupancy, building construction type, frontage, and whether the building is sprinklered, all of which may set a limit more or less than a zoning ordinance. For example, a zoning ordinance may set a maximum limit of 200,000 ft², but using a Type IIA construction with no frontage may limit the area to 150,000 ft². The *Life Safety Code* also places restrictions on building area; however, like the IBC, it is not the primary determinant until occupancy and building type are determined. A zoning ordinance sets limits on the floor area ratio based on lot size, setbacks, maximum height, and solar access, among other possible parameters. A combination of these factors will determine the maximum allowable floor area.

QUESTION DATA

Vendor

0000102574

Solving Time**Difficulty**

easy

Quantitative?

No

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OTHER VERSIONS

DISCIPLINES

ARE Programming ar
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Design[\(/admin/questions/inc
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Design\)](#)

KNOWLEDGE AREAS

Codes and Regulatio
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and Regulations\)](#)

PRODUCTS USED IN

Test Bank

Question preview

Question

High voltages are used in commercial buildings because

Answers

- (A) conductors and conduit can be smaller
- (B) a wider variety of loads can be accommodated
- (C) commercial buildings require ~~more power~~
- (D) transformers can step down the voltages to whatever is required

The answer is (A).

Solution

As voltages increase, current may be decreased and the system will still provide the same amount of power. Lower currents require smaller conductors. For large commercial buildings, smaller conductors translate to less expense in conductors and conduit, as well as easier installation of smaller wires.

QUESTION DATA

Vendor

0000019210

Solving Time**Difficulty**

easy

Quantitative?

No

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OTHER VERSIONS**DISCIPLINES**

ARE Project Planning
Design

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Project Planning and
Design)

KNOWLEDGE AREAS

Building Systems,
Materials, and Assen
(/admin/questions/ir
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Systems, Materials, &
Assemblies)

PRODUCTS USED IN

AR5PPDQB

Test Bank

Question preview

Question

A seven-story office building is to have a variable air volume system. The building will have 105,000 ft² of net space and an estimated 126,000 ft² of gross area. About how much space should be the minimum area allowed for heating, ventilating, and air conditioning (HVAC) systems?

Answers

- (A) 2500 ft²
- (B) 3800 ft²
- (C) ~~6300~~ ft²
- (D) ~~7600~~ ft²

The answer is (D).

Solution

For most midsize buildings, an all-air or air-water system needs about 3–9% of the gross area for HVAC system mechanical space. Office buildings fall somewhere near the midpoint of the range, so use 6% for this question. 6% of the estimated 126,000 ft² gross area is 7560 ft². This is rounded up to 7600 ft², so option (D) is correct as a minimum estimated area.

QUESTION DATA

Vendor

0000019194

Solving Time**Difficulty**

easy

Quantitative?

Yes

Status**Active****Created On**

01/19/2018 10:21:49

PM

Published On

01/19/2018 10:21:49

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Modified On

07/31/2020 05:33:06

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OTHER VERSIONS

DISCIPLINES

ARE Project Planning
Design

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Project Planning and
Design)

KNOWLEDGE AREAS

Building Systems,
Materials, and Asser
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Systems, Materials, a
Assemblies)

PRODUCTS USED IN

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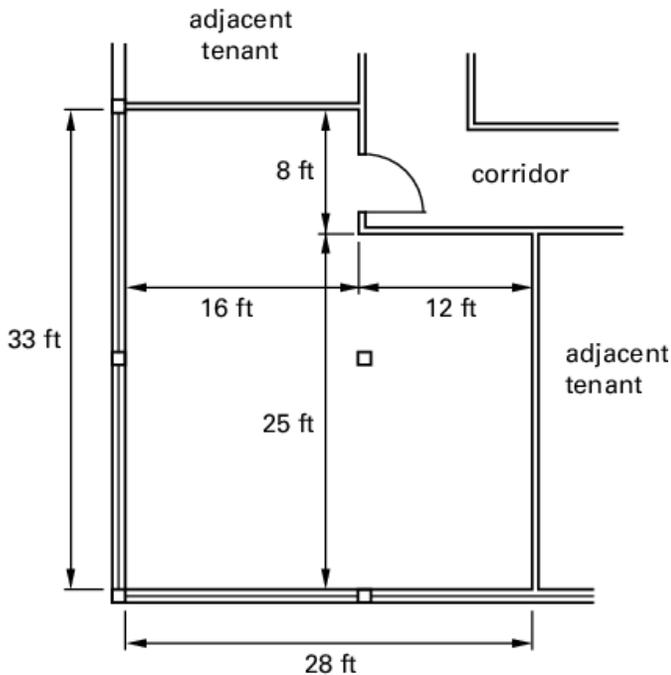
Chapter 10, question
19

[Return to Questions \(/admin/questions/0?sfield=magento_id&stext=0000000406&sdka=&stype=&sdiff=\)](#)

Test Bank Question preview

Question

An architect is asked to calculate the rentable area of the following office space according to ANSI/BOMA Z65.1, *Office Buildings: Standard Methods of Measurement*. The columns are 1 ft by 1 ft. The exterior walls are 1 ft thick and the inside face of the glass is 6 in from the inside face of the interior wall. The corridor walls and demising walls are 4 in thick. Which of the measurement procedures would result in an undersized rentable area?



Answers

- (A) Take the width of the office as 28 ft 8 in.
- (B) Use 33 ft as the length of the office.
- (C) Include the area of the columns.
- (D) Include a portion of the common restrooms and corridors.

The answer is (B).

Solution

Calculations of the rentable area of an office follow different rules from calculations of the architectural area of a space. To calculate the rentable area of a space, use the following guidelines.

- When measuring from an exterior wall in which more than 50% of the wall is glass, measure from the inside face of the glass.
- ~~Measure to the inside face of walls between the office and the corridor.~~
- Measure to the centerline of demising walls, or walls between tenants.
- The rentable area would also include a share of common restrooms and corridors.
- No deductions are made for columns or projections necessary to the building.

~~The length of the office must include half of the demising partition and the distance to the inside face of the glass.~~

QUESTION DATA

Vendor

0000000406

Solving Time

Difficulty

easy

Quantitative?

Yes

Status

Active

Created On

12/17/2019 06:21:56 PM

Published On

12/17/2019 06:21:56 PM

Modified On

07/31/2020 09:42:07 PM

OTHER VERSIONS

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DISCIPLINES

ARE Programming and
Analysis
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Programming and Analysis

KNOWLEDGE AREAS

Building Analysis and
Programming
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sfield=area&stext=Building
Analysis and
Programming)

PRODUCTS USED IN

AR5PAQB

Test Bank

Question preview

Question

Which of the following would help to minimize oil canning? (Choose the three that apply.)

Answers

- (A) Design attachment hardware that allows panels to move in response to expansion and contraction caused by changes in temperature.
- (B) Include information in the specifications that requires the installer to transport panels vertically rather than horizontally.
- (C) Specify a high-gloss painted finish on the panels.
- (D) Carefully coordinate the design of the supporting structure to ensure that it is level and plumb.
- (E) Design the panels to allow for a slight bend in the metal.
- (F) Specify a thicker panel than would be normally required.

The answer is (A)(B)(D).

Solution

Oil canning gives a metal siding panel a wavy appearance. Generally, it is not a structural issue, just an aesthetic one. However, it can be minimized through careful design of the panels, attachment hardware, and supporting structure. For example, a textured, ribbed, or matte finish will minimize the appearance of waviness more than a smooth, glossy finish. Allowing space at the hardware connections for expansion and contraction will also help to minimize the waviness.

Most of the things that can be done to minimize oil canning fall under the responsibility of the contractor in the field, but the techniques can be written into the architect's specifications to ensure proper handling of materials and installation. Panels should always be transported vertically rather than horizontally, and care should be taken not to twist them. The supporting structure should be as flat, or planar, as possible.

QUESTION DATA

Vendor

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Solving Time**Difficulty**

easy

Quantitative?

No

Status**Active****Created On**

07/30/2020 06:13:33

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Published On

07/30/2020 06:13:33

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Modified On

07/31/2020 05:33:06

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DISCIPLINESARE Project Planning :
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Project Planning and
Design)**KNOWLEDGE AREAS**Building Systems,
Materials, and Assembl
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Systems, Materials, an
Assemblies)**PRODUCTS USED IN**

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Chapter 22, question 1

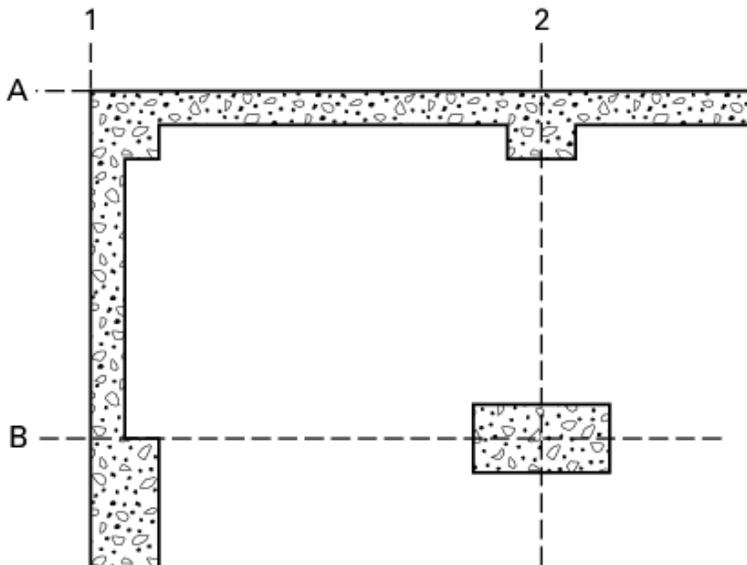
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Test Bank

Question preview

Question

In the partial plan of a concrete basement shown, what would be the best way to improve the economy of the concrete formwork?



Answers

- (A) Make the column square.
- (B) Separate the pilaster at A2 from the wall.
- (C) Form the pilaster at A1 with a diagonal.
- (D) Make the wall along grid line 1 a uniform thickness.

The answer is (D).

Solution

Forming corners in concrete always adds to the cost, so making the wall a uniform thickness would be most economical even though more concrete would be required. Making the column square would decrease the amount of concrete but would still require the same amount of forming. Separating the pilaster from the wall would actually increase the cost of formwork. Forming the pilaster with a diagonal would not be appropriate because of the structural problems caused by decreasing the column area and placing reinforcement.

QUESTION DATA

Vendor

0000019165

Solving Time

Difficulty

easy

Quantitative?

No

Status

Active

Created On

01/19/2018 10:21:48

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OTHER VERSIONS

DISCIPLINES

ARE Project Planning
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KNOWLEDGE AREAS

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Materials, and Asser
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Assemblies)

PRODUCTS USED IN

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Test Bank

Question preview

Question

Which of the following would have the greatest impact on the size and configuration of an accessible restroom?

Answers

- (A) 5 ft clear circular turnaround space
- (B) maneuvering space on the outside of the entry door to the room
- (C) clear space at towel dispensers and full-height mirrors
- (D) minimum 36 in access route into and through the room

The answer is (A).

Solution

Providing for a 5 ft turning circle requires the most space of the four choices listed. If the turning circle is provided, it is very likely that a 36 in access space and clear space at the towel dispensers will also be available. The maneuvering space on the outside of the entry door is irrelevant to the interior dimensions of the restroom.

QUESTION DATA

Vendor

0000019191

Solving Time**Difficulty**

easy

Quantitative?

No

Status

Active

Created On

01/19/2018 10:21:48 PM

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01/19/2018 10:21:48 PM

Modified On

07/31/2020 05:33:06 PM

OTHER VERSIONS**DISCIPLINES**

ARE Programming and Analysis

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ARE Project Planning and Design

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KNOWLEDGE AREAS

Codes and Regulations

[\(/admin/questions/index/sfield=area&stext=Codes and Regulations\)](#)

PRODUCTS USED IN

Test Bank

Question preview

Question

A small office building with a storefront wall system experiences significant heat gains during the summer and considerable heat loss during the winter. Which of the following is the most ~~cost-effective~~ way of managing the temperature within the office building without compromising the integrity of the space?

Answers

- (A) Upgrade the mechanical system to handle the large seasonal temperature swings.
- (B) Replace the storefront wall system with an insulated wall assembly to match the remaining existing exterior walls.
- (C) ~~Install blinds inside the storefront wall system.~~
- (D) Plant deciduous trees outside the storefront wall system.

The answer is (D).

Solution

Although it alters the landscape, planting deciduous trees offers a cost-effective way to help manage temperature in a space that undergoes seasonal temperature swings. During the summer, deciduous trees help to block sunlight, reducing heat gains, and during the winter they allow sunlight to pass into the building.

Upgrading the mechanical system may help more to maintain the temperature within the office space, but it is likely to be costly compared with the other proposed solutions. Replacing the existing storefront wall system with an insulated wall assembly would definitely reduce the building's heat gains and losses, but removing the glazing would drastically alter the office area, effectively removing outside views. ~~Installing blinds inside the storefront wall system would not affect heat gain, since it would do nothing to prevent the sun's radiation from traveling through the glazing.~~

QUESTION DATA

Vendor

0000208891

Solving Time

Difficulty

easy

Quantitative?

[]

Status

Active

Created On

05/27/2020 08:54:48

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Published On

05/27/2020 08:54:48

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07/31/2020 05:33:07

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OTHER VERSIONS

DISCIPLINES

FE Civil

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PE Mechanical: Mach

Design and Materials
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PE Environmental

(/admin/questions/index?sfield=discipline&stext=Environmental)

ARE Project Planning

Design
(/admin/questions/index)

Test Bank

Question preview

Question

Consider the location for a mechanical system and its vertical distribution tree in a 10-story office building. Which of the following locations ~~should be avoided~~?

Answers

- (A) within internal circulation cores
- (B) ~~integrated with a building~~
- (C) at the edges of a building
- (D) between the internal core and the edge of a building

The answer is (C).

Solution

The mechanical system and its vertical distribution tree should not be placed between the internal core and the edge of the building, because this would reduce the desirable and preferred areas for leasable office space.

Exterior walls provide the best opportunity to take advantage of natural light, outside views, and natural ventilation. When mechanical systems and their distribution are placed near the center of the building, the exterior wall is made available for other uses.

QUESTION DATA

Vendor

0000087104

Solving Time**Difficulty**

easy

Quantitative?

No

Status**Active****Created On**

07/16/2019 10:00:52

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07/16/2019 10:00:52

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Modified On

10/16/2020 10:35:19

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OTHER VERSIONS

DISCIPLINES

ARE Project Development and Documentation
 (/admin/questions/index?sfield=discipline&stext=Project Development Documentation)

KNOWLEDGE AREAS

Integration of Building Materials and System
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PRODUCTS USED IN

AR5PDDQB

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Test Bank

Question preview

Question

Ceramic mosaic tile in a public shower room is best installed over a

Answers

- (A) water-resistant gypsum board
- (B) bed of portland cement mortar
- (C) concrete block wall coated with a waterproofing membrane
- (D) rigid cement composition board made for this purpose

The answer is (B).

Solution

A full bed of portland cement mortar offers the best durability and water resistance for high-use, wet areas.

QUESTION DATA

Vendor

0000002672

Solving Time**Difficulty**

easy

Quantitative?

No

Status

Active

Created On

01/19/2018 10:21:46 PM

Published On

01/19/2018 10:21:46 PM

Modified On

07/31/2020 05:33:06 PM

OTHER VERSIONS**DISCIPLINES**

ARE Project Planning Design
(/admin/questions/index?sfield=discipline&stext=Project Planning and Design)

KNOWLEDGE AREAS

Building Systems, Materials, and Assemblies
(/admin/questions/index?sfield=area&stext=Building Systems, Materials, and Assemblies)

PRODUCTS USED IN

AR5PPDQB

Test Bank

Question preview

Question

~~The roof of a building is generally subject to what type of wind pressure?~~

Answers

- (A) direct (positive) pressure
- (B) uplift, or suction
- (C) horizontal load
- (D) ~~combination of direct (positive) pressure and suction~~

The answer is (B).

Solution

The roof of a building is generally subject to uplift, or suction. This is why roofs are often blown off during hurricanes and tornadoes.

QUESTION DATA

Vendor

0000019259

Solving Time**Difficulty**

easy

Quantitative?

No

Status

Active

Created On

07/30/2020 06:13:53 PM

Published On

07/30/2020 06:13:53 PM

Modified On

07/31/2020 05:33:07 PM

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DISCIPLINES

ARE Project Planning :
Design
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KNOWLEDGE AREAS

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PRODUCTS USED IN

Chapter 12, question 4

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Test Bank

Question preview

Question

For a large building being planned with a two-level basement used for meeting rooms, which of these water-related soil problems would be the most important to solve?

Answers

- (A) uplift pressure on the lowest slab
- (B) moisture penetration caused by hydrostatic pressure
- (C) deterioration of foundation insulation
- (D) reduced load-carrying capacity of the soil

The answer is (B).

Solution

All of the answer options listed would need to be addressed, but because the problem asks which is most important, a judgment call is required. Option (D) is unlikely because a large building would probably utilize piers or caissons for the foundation, so the load-carrying capacity of the soil would not be as critical. Foundation insulation could be easily selected to avoid deterioration problems, so option (C) is an unlikely answer. Of the two remaining answers, hydrostatic pressure could cause the most problems, so this is the primary problem to be solved.

QUESTION DATA

Vendor

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Solving Time

Difficulty

easy

Quantitative?

No

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Created On

01/19/2018 10:21:47 PM

Published On

01/19/2018 10:21:47 PM

Modified On

07/31/2020 05:33:06 PM

OTHER VERSIONS

DISCIPLINES

FE Civil

(/admin/questions/index?sfield=discipline&stext:Civil)

PE Mechanical: Machine Design and Materials
(/admin/questions/index?sfield=discipline&stext:Mechanical: Machine Design and Materials)

ARE Programming and Analysis
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ARE Project Planning Design
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Test Bank

Question preview

Question

An architect is considering general planning concepts for a veterinarian hospital and kennel, both owned by the same company. Which is the best design approach for both?

Answers

- (A) Combine both functions into one structure to allow sharing of common functions.
- (B) Make the hospital two levels to provide more site space for outdoor runs.
- (C) Design two separate buildings that share the same parking area.
- (D) Develop two wings for different functions but share a common entry suite.

The answer is (C).

Solution

Although both types of facilities may share some common functions, such as administrative offices and food storage, the services each provides is unique and the reasons for visiting differ. In addition, a kennel requires adjacent outdoor facilities that a hospital does not. A two-level facility is not efficient for animals or moving supplies because it would require ramps and an elevator. People bring in their animals to each facility for very different reasons, so each should have its own a reception area to avoid potential problems. The best design approach would be to separate the two buildings but to have them on the same site with separate, distinct entrances. However, they could share the same parking area.

QUESTION DATA

Vendor

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Solving Time

Difficulty

easy

Quantitative?

No

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Created On

01/19/2018 10:21:54

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Published On

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OTHER VERSIONS

DISCIPLINES

FE Civil

(/admin/questions/index?sfield=discipline&stext=Civil)

FE Electrical and Computer

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FE Environmental

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FE Mechanical

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Test Bank

Question preview

Question

During construction, the contractor asks the architect to allow the installation of a different floor tile than originally specified because the proposed new tile can be delivered faster. According to American Institute of Architects (AIA) Document A201, *General Conditions of the Contract for Construction*, which of the following statements are true about this request? (Choose the four that apply.)

Answers

- (A) The owner's consent is required to allow this change to be made.
- (B) The tile, if approved, will not be covered by warranty.
- (C) The substitution must be made with a change order.
- (D) The architect must evaluate the request and determine that the material is equal to that originally specified.
- (E) A change order would be issued only if the cost of the new tile is greater than the cost of the specified tile.
- (F) The contractor is responsible for any additional cost associated with the change.

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

Solution

AIA Document A201, Sec. 3.4.2, states that the contractor may make substitutions only with the owner's consent, after evaluation by the architect and in accordance with a change order or construction change directive. The substitution will be covered by warranty. In this case, the substitution is being made for the contractor's convenience, so a change to the contract sum is not warranted, and the contractor is responsible for any increase in cost. If an adjustment to the contract sum were necessary, it must be made by change order.

QUESTION DATA

Vendor

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Solving Time**Difficulty**

easy

Quantitative?

No

Status

Active

Created On

08/10/2020 08:11:43
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Published On

08/10/2020 08:11:43
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Modified On

10/13/2020 07:04:12
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OTHER VERSIONS

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DISCIPLINES

FE Civil

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Civil)

PE Civil: Construction
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Civil: Construction)

PE Civil: Geotechnical
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Civil: Geotechnical)

PE Civil: Structural
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Test Bank

Question preview

Question

Software utilizing building information modeling (BIM) provides a digital, spatial, and measurable design tool that may be utilized by the entire design and construction team. This is intended to provide which benefits over a non-BIM design method? (Choose the three that apply.)

Answers

- (A) collaboration with the design team earlier in the design development phase
- (B) license sharing with consultants so additional software need not be acquired
- (C) utilization of intelligence within models to generate schedules and cost estimates
- (D) use of models to facilitate ongoing building maintenance and operations
- (E) reduction of time needed to design buildings
- (F) elimination of consultants because of the software's ability to analyze BIM data

The answer is (A)(C)(D).

Solution

BIM provides an intelligent simulation of architecture that is supposed to achieve an integrated delivery.

Early development of the model is shared with the design team with the intent of identifying issues and locating potential clashes between disciplines. The model intelligence can provide data that is easily incorporated by the software into schedules and cost estimates. ~~The BIM model also may contain data such as installation time, cost, manufacturers' details, sustainability, and maintenance information. Utilizing this information will provide an opportunity for building operations to use the BIM model in maintaining and operating the building long term.~~

License sharing is not a part of the design process and may be illegal in some cases. ~~The time needed to design a building is not necessarily altered by the design method or efficiency of collaboration.~~ Consultants may utilize the BIM software, but the software itself will not replace the role of the consultant.

QUESTION DATA

Vendor

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Solving Time**Difficulty**

easy

Quantitative?

No

Status**Active****Created On**

07/27/2020 09:01:02

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Modified On

10/16/2020 10:35:13

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DISCIPLINES

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Project Development a

Documentation)

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Engineering)

Test Bank

Question preview

Question

A building has walls that are 10 ft high and 15 ft long with an R-value of $13 \text{ ft}^2\text{-}^\circ\text{F-hr/Btu}$. The indoor temperature is 74°F , and the outdoor design temperature is 35°F . The hourly heat loss is most nearly

Answers

- (A) 450 Btu/hr
- (B) 590 Btu/hr
- (C) 1200 Btu/hr
- (D) 5800 Btu/hr

The answer is (A).

Solution

The wall area is

$$\begin{aligned} A &= bh = (10 \text{ ft})(15 \text{ ft}) \\ &= 150 \text{ ft}^2 \end{aligned}$$

The hourly heat loss is

$$\begin{aligned} q &= \left(\frac{A}{R} \right) \Delta T = \left(\frac{150 \text{ ft}^2}{13 \frac{\text{ft}^2\text{-}^\circ\text{F-hr}}{\text{Btu}}} \right) (74^\circ\text{F} - 35^\circ\text{F}) \\ &= 450 \text{ Btu/hr} \end{aligned}$$

QUESTION DATA

Vendor

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Solving Time

Difficulty

easy

Quantitative?

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Created On

05/27/2020 08:00:27 PM

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05/27/2020 08:00:27 PM

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10/16/2020 10:35:22 PM

OTHER VERSIONS

DISCIPLINES

ARE Project Development and Documentation (/admin/questions/i?sfield=discipline&stext=Project Development Documentation)

KNOWLEDGE AREAS

Integration of Build Materials and Systems (/admin/questions/i?sfield=area&stext=of Building Materials Systems)

PRODUCTS USED IN

AR5PDDQB

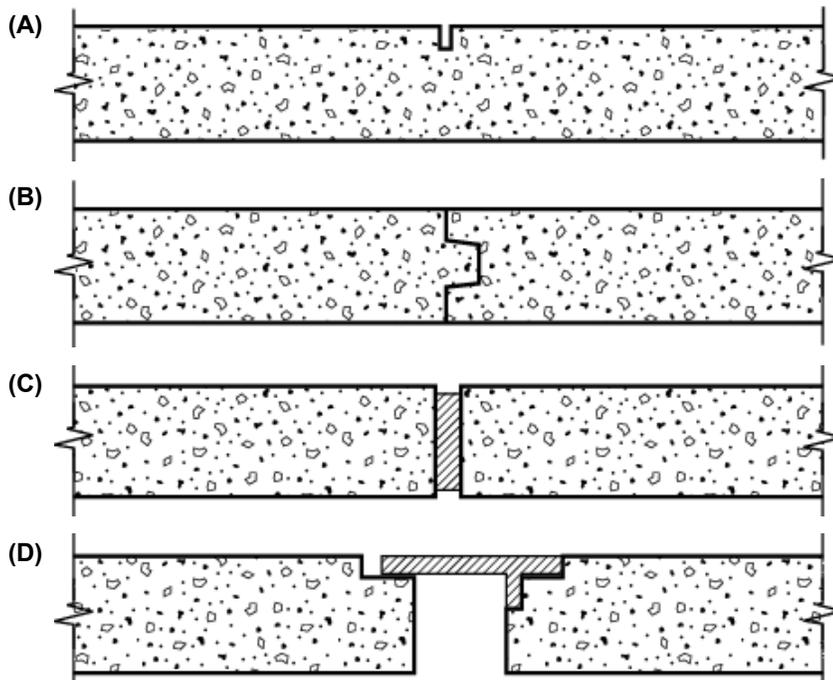
Test Bank

Question preview

Question

Which of the concrete joints shown connects two successive pours of concrete?

Answers



The answer is (B).

Solution

Option (B) shows a construction joint, which would be used to physically connect a new pour of concrete to a previously poured section. In most cases the two sections are connected with a keyed joint. Reinforcing bars across the joint are also commonly used.

The drawing in option (A) shows a control joint. Option (C) shows an isolation joint, which can be used for successive pours of concrete but does not connect the two pairs. Option (D) shows an expansion joint used to allow two sections of a building to move independently.

QUESTION DATA

Vendor

0000002569

Solving Time

Difficulty

easy

Quantitative?

No

Status

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Created On

01/19/2018 10:13:43

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OTHER VERSIONS

DISCIPLINES

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KNOWLEDGE AREAS

Integration of Building

Materials and System

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of Building Materials &

Systems)

PRODUCTS USED IN

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Test Bank Question

preview

Question

During design development for a small corporate headquarters building, the client informs the architect that, due to poor sales in the previous quarter, the budget for the project must be reduced. Which of the following actions ~~should the architect avoid in order to~~ reduce initial construction costs?

Answers

- (A) reducing the number of pieces in the details
- (B) eliminating high maintenance finishes
- (C) suggesting changes that would make custom finishes closer to industry standards
- (D) reducing the number of different details involved in the project

The answer is (B).

Solution

~~Using industry standard details, reducing the number of components in the construction assembly, and reducing the number of unique details all would help reduce construction costs.~~

Although life-cycle costs are a consideration, reducing maintenance costs would not have any effect on reducing initial construction costs.

QUESTION DATA

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Solving Time

Difficulty

easy

Quantitative?

No

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Created On

07/30/2020 06:13:43

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Modified On

07/31/2020 05:33:06

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DISCIPLINES

FE Civil

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Civil)

FE Electrical and

Computer

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Electrical and Comput

FE Environmental

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Environmental)

FE Mechanical

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Test Bank

Question preview

Question

Which heating, ventilating, and air conditioning (HVAC) system would be the most appropriate choice for a hospital?

Answers

- (A) multizone
- (B) high-velocity dual duct
- (C) variable air volume
- (D) ~~fan coil with supplementary air~~

The answer is (D).

Solution

A system that exhausts all return air would be the best choice to maintain the quantities of fresh air needed in a hospital. ~~A fan coil with supplementary air would~~ satisfy this requirement.

All of the other systems listed return room air to the main air handling unit, where some of it is reused in the system.

QUESTION DATA

Vendor

0000019198

Solving Time

Difficulty

easy

Quantitative?

No

Status

Active

Created On

01/19/2018 10:21:49 PM

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07/31/2020 05:33:06 PM

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KNOWLEDGE AREAS

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PRODUCTS USED IN

AR5PPDQB

Chapter 12, question 6

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Test Bank Question

preview

Question

A retention pond manages stormwater runoff by

Answers

- (A) slowing it and allowing sediment to settle while letting the water seep into the ground
- (B) holding the excess until it can discharge at a controlled rate into the storm sewer system
- (C) preventing it from contaminating other portions of the site
- (D) retaining it until it can seep into the ground

The answer is (B).

Solution

A retention pond, also called a ~~holding pond or catch basin~~, prevents excessive stormwater runoff on a site from overloading the storm sewer system by temporarily holding the excess water and releasing it at a controlled rate until the water has lowered to reach its designed holding level.

Construction that is designed to allow sediment to settle while water drains into the ground is called a bioswale. Construction designed to retain stormwater until it can seep into the ground is called an infiltration basin.

~~The term *catch basin* sometimes also refers to a storm drainage structure that is designed to collect grit and trash while allowing the stormwater to flow out the drainage pipes.~~

QUESTION DATA

Vendor

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Solving Time

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