EXAM

Course 16186
4 Hour

Construction Standards

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We would like to thank you for ordering Course #16186 (Construction Standards 4-Hour).

This course is designed to familiarize Contractors and Inspectors with information on the updated construction codes required for building a home, according to the Uniform Dwelling Code (UDC).

Topics covered in this course include Design Criteria, Excavations, Footings, Foundations, Floors, Walls, Roof and Ceilings, Fireplace Requirements, Construction in Floodplains and Installation of Manufactured Homes are included in this course.

This course is a distance learning or e-learning course, which allows the attendee to complete the course on their time schedule.

Materials included

1. REVIEW MATERIALS
2. EXAM
3. Answer Sheet

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The State of Wisconsin requires that you attain a passing score of 70%. In the event that you did not attain the required score we will notify you of the incorrect answers. You will need to retake only the incorrect questions and resubmit them to us for grading purposes.

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Questions 1 to 6 (Refer to Review Materials SPS 321.02 Loads and Materials)

1. _____. Every dwelling shall be designed and constructed to support the actual dead load, live loads and wind loads acting upon it without exceeding the allowable stresses of the material. The construction of buildings and structures shall result in a system that provides a complete load path capable of transferring all loads from point of origin through the load resisting elements to the foundation.

a. Dead Loads
b. Live Loads
c. Design Load
d. Snow Loads

2. _____. Dwellings shall be designed and constructed to withstand either a horizontal and uplift pressure of 20 pounds per square foot acting over the surface area or the wind loads determined in accordance with ASCE 7–05, *Minimum Design Loads for Buildings and Other Structures*.
Note: ASCE 7–05 allows for substantial reduction from 20 psf as applied to the surface area.

a. Dead Loads
b. Live Loads
c. Wind Loads
d. Snow Loads

3. _____. Roofs shall be designed and constructed to support the minimum snow loads listed on the zone map. The loads shall be assumed to act vertically over the roof area projected upon a horizontal plane.

a. Snow Loads
b. Wind Loads
c. Dead Loads
d. Live Loads

4. STRUCTURAL STANDARDS. *General.* Design, construction, installation, practice and structural analysis shall conform to the following nationally recognized standards.

a. True
b. False

5. STRUCTURAL STANDARDS. *Wood.* 3. Sawn lumber that is not graded in accordance with the standards under subd. 1., shall use the NDS published allowable design stresses for the lumber species using grade number 3 when used for _____ and may use grade number 1 when used for beams, posts or timbers.

a. Studs
b. Stringers
c. Rafters or joists
d. All of the above

6. STRUCTURAL STANDARDS. *Masonry.* The design and construction of masonry shall conform to the following standards:

1. ACI 530, Building Code Requirements for Masonry Structures.
2. ACI 530.1, Specification for Masonry Structures.

a. True
b. False

Questions 7 to 14 (Refer to Review Materials SPS 321.03 Exits and 321.035 Interior Circulation)

7. EXITS ABOVE THE SECOND FLOOR (b) A second stairway or ramp exit is not required for habitable areas on a third floor that meet all of the following requirements:
1. The habitable area consists of a single room.
Note: Non−habitable areas, such as closets and bathrooms may be partitioned off.
2. The room is not used for sleeping.
3. The habitable area has a floor area of 400 square feet or less.
4. There is at least one egress window meeting the requirements of sub. (6) in the habitable area.

a. True
b. False

8. EXITS FROM THE FIRST FLOOR. (b) Both exits shall discharge to grade and may not go through a garage. This exit may include interior or exterior stairs.

a. True
b. False

9. EXITS FROM BASEMENTS AND GROUND FLOORS. *Basement and ground floors used for sleeping.*
1. Basements and ground floors used for sleeping shall be provided with at least _____.

a. one exit
b. two exits
c. one exit and one small window
d. Three exits

10. WINDOWS USED FOR EXITING. 5. a. Ladders or other stairs used to comply with subd. 4. May infringe on the required area of the areaway by a maximum of 6 inches.
b. Ladder rungs shall have a minimum inside width of at least 12 inches and shall project at least 3 inches from the wall behind the ladder.
c. Ladder rungs shall be able to support a concentrated load of 200 pounds.
d. Ladder rungs shall have a maximum rise of 12 inches between rungs and shall extend to within 12 inches of exterior grade.

a. True
b. False

11. EXITS ABOVE THE SECOND FLOOR (c) A second stairway or ramp exit is required for habitable areas on a third floor that meet all of the following requirements:
1. The dwelling is fully sprinklered in accordance with NFPA 13R or NFPA 13D.
2. If a required exit includes an attached garage, the garage shall be sprinklered.

a. True
b. False

12. DOORS USED FOR EXITING. (a) Doors used for exiting from a dwelling shall meet the following dimensions:
1. At least one exit door shall be a swing-type door at least 80 inches high by _____ wide.
2. Except as allowed under subds. 3. And 4., other required exit doors shall be at least 76 inches high by 32 inches wide.
3. Where double doors are used as a required exit, each door leaf shall provide a clear opening at least 30 inches wide and be at least 76 inches high.
4. Where sliding doors are used as a required exit, the clear opening shall be at least 29 inches wide and be at least 76 inches high.

a. 29 inches
b. 32 inches
c. 34 inches
d. 36 inches

13. HALLWAYS. (a) Except as allowed under par. (b), the clear width of hallways shall be at least 36 inches.
(b) The following are allowed to infringe on the required clear width of a hallway:
1.Door hardware and finish trim.
2. Handrails may infringe into the minimum width of a hallway up to 41/2 inches on each side.
3. Heating registers may infringe into the minimum width of a hallway up to 41/2 inches and no part of the register may be more than 38 inches above the floor.
4. Ducts, pipes, light fixtures, structural features, and corner treatments that are within 84 inches of the floor may infringe into the minimum width of a hallway by a maximum of 41/2 inches on each side.
5. Unlimited infringements are allowed in a hallway more than 84 inches above the floor.

a. True
b. False

14. KITCHENS. (a) There shall be at least 20 inches of clearance between a wall, a permanently− installed kitchen island, permanently−installed kitchen cabinets and the following kitchen appliances, if provided:
1. A range, cook top or oven.
2. A sink, refrigerator or freezer.
(b) Measurements shall be taken from the face of the wall, island, cabinet or appliance, ignoring knobs and handles.

a. True
b. False

Questions 15 to 26 (Refer to Review Materials SPS 321.04 Stairways and Elevated Areas, SPS 321.042 Ladders and SPS 321 .045 Ramps)

15. DETAILS. *Winder treads in series.* Two or more winder treads may be placed immediately adjacent to each other anywhere in a stairway provided both of the following conditions are met:
a. The winder treads shall have a minimum tread depth of _____measured at a point 12 inches from the narrow end of the tread.

a. 6 inches
b. 7 inches
c. 8 inches
d. 9 inches

16. DETAILS. (a) *Width.* (2) Spiral staircases shall be at least_____ inches wide measured from the outer edge of the supporting column to the inner edge of the handrail.

a. 26 inches
b. 30 inches
c. 32 inches
d. 36 inches

17. HANDRAILS AND GUARDS (c) *Guards.* 1. 'Application.' a. All openings between floors, and open sides of landings, platforms, balconies or porches that are more than _____ above grade or a floor shall be protected with guards.

a. 16 inches
b. 20 inches
c. 24 inches
d. 30 inches

18. DETAILS. *Uniformity*. 2. The allowed variation in uniformity under subd. 1. may not be used to exceed the maximum riser height under par. (b) or to decrease the minimum tread depth under par. (c).

a. True
b. False

19. HANDRAILS AND GUARDS. *General.* 3.c. _____ or similar materials used in guard infill shall be strung with maximum openings of 3 1/2 inches with vertical supports a maximum of 4 feet apart.

a. Rope
b. Cable
c. a. and b.
d. None of the above

20. HANDRAILS AND GUARDS. *Guards* 1.b. The requirements under subd. 1. a. apply where insect screens are the only means of enclosure or protection for a surface that is more than _____ above grade or a floor.

a. 18 inches
b. 20 inches
c. 22 inches
d. 24 inches

21. LANDINGS. *Exterior landings.* The exterior landing, platform, or sidewalk at an exterior doorway shall be located a _____ below the interior floor elevation, be sloped away from the doorway at a minimal rate that ensures drainage, and have a length of at least 36 inches in the direction of travel out of the dwelling.

a. minimum of 4 inches
b. maximum of 4 inches
c. maximum of 8 inches
d. minimum of 8 inches

22. LANDINGS. (a) *Intermediate landings.* A level intermediate landing shall be provided in any stairway with a height of _____.

a. 8 feet or more.
b. 10 feet or more.
c. 12 feet or more.
d. 14 feet or more.

23. DETAILS. (a) *Width.* Handrails and associated trim may project a maximum of _____ inches into the required width at each side of the stairway.

a. 2 inches
b. 3.5 inches
c. 4 inches
d. 4.5 inches

24. WIDTH. The width of the ladder shall be a minimum of 20 inches wide and a maximum of _____ wide.

a. 28 inches
b. 30 inches
c. 32 inches
d. 36 inches

25. For ladders with less than a 65° pitch the vertical clearance above any tread or rung to an overhead obstruction shall be at least 7 feet 4 inches measured from the leading edge of the tread or rung.

a. True
b. False

26. A level landing shall be provided at the top, at the foot and at any change in direction of the ramp. The landing shall be at least as wide as the ramp and shall measure at least _____ in the direction of travel.

a. 1 foot 6 inches
b. 2 feet
c. 2 feet 6 inches
d. 3 feet

Questions 27 to 34 (Refer to Review Materials SPS 321.05 Natural Light and Natural Ventilation; SPS 321.06 Ceiling Height; SPS 321.07 Attic and Crawl Space Access; SPS 321.08 Fire Separation and Dwelling Unit Separation)

27. SAFETY GLASS. Except as provided in par. (bm), glazing shall consist of safety glass meeting the requirements of both 16 CFR Part 1201 or ANSI Z97.1 when installed in any of the following locations:
2. In any wall where the glazing is within 7 feet vertically of the lowest drain inlet and within 5 feet horizontally of the nearest part of the inner rim of a bathtub, hot tub, shower, spa or whirlpool appliance.

a. True
b. False

28. SAFETY GLASS. (am) Except as provided in par. (bm), glazing shall consist of safety glass meeting the requirements of either 16 CFR Part 1201 or ANSI Z97.1 when installed in any of the following locations:
1. In any sidelight or glazing adjacent to a door, that meets all of the following:
a. The nearest point of the glazing is within 2 feet of the door when the door is in the closed position.
b. The nearest point of the glazing is within 5 feet of the floor.
c. The plane of the glazing is within 30 degrees of the plane of the door when the door is in the closed position.

a. # 1 a.only
b. # 1 b. only
c. # 1 c. only
d. # 1 a., 1 b., and 1 c.

29. CEILING HEIGHT. (1) (a) Rooms may have ceiling heights of less than 7 feet provided _____ of the room's floor area has a ceiling height of at least 7 feet. Any area with a ceiling height of less than 5 feet may be ignored in this calculation.

a. at least 50%
b. at least 60%
c. at least 70%
d. at least 80%

30. ATTIC. Attics with 150 or more square feet of area and 30 or more inches of clear height between the top of the ceiling framing and the bottom of the rafter or top truss chord framing shall be provided with an access opening of _____, accessible from inside the structure.

a. at least 10 X 24 inches
b. at least 12 X 24 inches
c. at least 14 X 24 inches
d. at least 16 X 24 inches

31. FIRE SEPARATION. *Other openings.* 1. Access openings in fire separation walls or ceilings shall be protected in one of the following ways:
a. The opening is protected with a material that has a finish rating of at least 20 minutes.
b. The opening is protected in the same way as the wall or ceiling where the opening is located.

a. True
b. False

32. FIRE SEPARATION. *Doors.* 1. The door and frame assembly between the dwelling unit and an attached garage can be labeled by an independent testing agency as having a minimum fire−resistive rating of 20 minutes. The test to determine the 20−minute rating is required to include the hose stream portion of the test.
Note: Acceptable tests for fire rating of door assemblies include ASTM E−152, UL 10B, and NFPA 252.

a. True
b. False

33. DWELLING UNIT SEPARATION. *Draft stopping for concealed roof spaces and attics.*
1._____ shall be draft stopped above and in line with the separation wall.
2. Acceptable draft stopping materials include:
a. 3/8−inch wood structural panel.
b. 1/2 -inch gypsum board.

a. Attic areas
b. Mansards and overhangs
c. Other concealed roof spaces
d. All of the above

34. DWELLING UNIT SEPARATION. *Attic separation.* Dwelling units with attic space that extends over one of the units shall be separated in accordance with one of the following:
1. 'Complete separation.' The units shall be provided with wall construction under par. (d) that cannot extend all the way to the underside of the roof deck.
2. 'Vertical and horizontal separation.'
a. The units shall be provided with wall construction under par. (d) that extends to the dwelling unit ceiling and ceiling construction under par. (e).
b. Dwelling units using this method of separation shall not provide attic draft stopping under par. (f) that extends all the way to the underside of the roof deck above and in line with the separation wall.

a. True
b. False

Questions 35 to 38 (Refer to Review Materials SPS 321.085 Fireblocking; SPS 321.09 Smoke Detectors and SPS 321.095 Automatic Fire Sprinklers)

35. FIREBLOCKING MATERIALS. Fireblocking shall consist of one of the following:
(a) 2-inch nominal lumber.
(b) Two layers of one-inch nominal lumber.
(c) One thickness of 3/4−inch nominal plywood or wood structural panel with any joints backed with the same material.
(d) One thickness of 1/2−inch gypsum wallboard, face nailed or face screwed to solid wood, with any joints backed with the same material.
(e) Fiberglass or mineral wool batt insulation may be used if both of the following conditions are met:
1. The least dimension of the opening may not exceed 4 inches.
2. The batt shall be installed to fill the entire thickness of the opening or stud cavity.
(f) For wires, cables, pipes and vents only, non-shrinking caulk, putty mortar, or similar material may be used provided no dimension of the opening exceeds 1/2 inch around the penetrating object.
(g) For chimneys, fireplaces and metal vents, fireblocking shall be metal, cement board or other noncombustible material.

a. (a), (c) and (e)
b. (b), (d) and (f)
c. (a), (b), (c), (d), (e), (f) and (g)
d. (a), (b), (c), (f) and (g)

36. AUTOMATIC FIRE SPRINKLERS. (1) Except as provided in subs. (2) and (3), the design, installation, testing and maintenance of automatic fire sprinklers shall conform to NFPA 13D.
(2) (a) The requirements of NFPA 13D sections 6.3 (4), 8.1.3 and 8.6 are not included as part of this code.
(b) Fire department connections are prohibited in multipurpose piping systems.
(3) (a) Limited area automatic fire sprinkler systems are allowed in dwellings.
(b) 1. A limited area automatic fire sprinkler system shall add the following wording to the warning sign required in 6.3(5) of NFPA 13D: "The number and location of sprinklers in this system does not conform to NFPA 13D."

a. True
b. False

37. SMOKE DETECTORS. (2) (a) Except for dwellings with no electrical service, smoke detectors required by this section shall be continuously powered by the house electrical service, and shall be interconnected so that activation of one detector will cause activation of all detectors.

Note: Wireless interconnectivity is permitted under this paragraph.

(b) Dwellings with no electrical service shall be provided with battery–powered smoke detectors in the locations under sub. (1). Interconnection and battery–backup are not required in these dwellings.

a. True
b. False

38. SMOKE DETECTORS. A listed and labeled multiple–station smoke alarm with battery backup shall be installed in all of the following locations:

a. An alarm shall be installed inside each sleeping room.
b. On floor levels that contain one or more sleeping areas, an alarm shall be installed inside of the sleeping rooms, within 15 feet of the centerline of the door opening and in an exit path from any sleeping room.
c. On floor levels that do not contain a sleeping area, an alarm shall be installed in a common area on each floor level.

a. True
b. False

Questions 39 to 42 (Refer to Review Materials SPS 321.097 Carbon Monoxide Alarms SPS 321.10 Protection Against Decay and Termites; SPS 321.11 Foam Plastics, SPS 321.115 Installation of Elevators or Dumbwaiters)

39. PROTECTION AGAINST DECAY AND TERMITES. (5) (a) Fasteners for pressure–preservative treated wood and fire–retardant–treated wood shall meet all of the following requirements:

1. The fastener is a steel bolt with a diameter of 0.5 inch or greater.

2. The fastener is not made with stainless steel.

3. The fastener is made of hot–dipped, zinc–galvanized steel with the coating weight and thickness labeled as complying with ASTM A 153.

4. The fastener is made of steel with a mechanically–deposited zinc coating labeled as complying with ASTM B 695, Class 55 or greater.

5. The fastener has coating types and weights in accordance with the fastener manufacturer's recommendations. In the absence of the manufacturer's recommendations subd. 1., 2., 3., or 4. shall apply.

Note: "Zinc plated," "zinc coated," "chrome plated," etc., fasteners do comply with all of these standards.

a. True
b. False

40. PROTECTION AGAINST DECAY AND TERMITES. (1) Wood used in any of the applications under this section shall meet all of the following requirements:

a. The wood shall be labeled and pressure treated with preservative in accordance with an AWPA standard or shall be naturally durable and decay–resistant or shall be engineered to be decay resistant.

b. The wood shall be pressure treated with preservative or shall be naturally termite–resistant unless additional steps are taken to make the wood termite–resistant.

a. True
b. False

41. FOAM PLASTIC. (2) Insulation that does not meet the requirements of this section may be approved by the department in accordance with s. SPS 320.18. Approval will be based on tests that evaluate materials or products representative of actual end−use applications.
Note: See s. SPS 322.21 (3) for requirements for protecting foam plastic on the exterior of a dwelling.

a. True
b. False

42. FOAM PLASTIC. (1) Foam plastic insulation shall have a flame spread rating of _____ and a smoke developed rating of 450 or less when tested in accordance with ASTM E−84.

a. 50 or more
b. 75 or less
c. 100 or more
d. 125 or less

Questions 43 to 47 (Refer to Review Materials SPS 321.12 Drainage; SPS 321.125 Erosion Control and Sediment Control; SPS 321.13 Excavations Adjacent To Adjoining Property; SPS 321.14 Excavations for Footings and Foundations)

43. EROSION CONTROL AND SEDIMENT CONTROL. *Maintenance*. A municipality shall not enact more stringent requirements regarding cleanup of soil or sediment deposition onto public ways.

a. True
b. False

44. EROSION CONTROL AND SEDIMENT CONTROL. *General*. Land disturbing construction activities, except those activities necessary to implement erosion or sediment control practices, may not begin until the sediment control practices are in place for each area to be disturbed in accordance with the approved plan.

a. True
b. False

45. EROSION CONTROL AND SEDIMENT CONTROL. *General*. Where land disturbing construction activity is to occur, erosion and sediment control practices shall be employed, as necessary, and maintained to prevent or reduce the potential deposition of soil or sediment to which of the following:
1. The waters of the state.
2. Adjacent properties.

a. #1
b. #2
c. #1 and #2
d. None of the above

46. DRAINAGE. (3) *Obstructions*. Where lot lines, walls, slopes, or other barriers prevent having the _____ in sub. (2), swales or other means shall be provided to ensure equivalent drainage away from the dwelling.

a. 10-foot distance
b. 11-foot distance
c. 12-foot distance
d. 13-foot distance

47. EXCAVATIONS FOR FOOTINGS AND FOUNDATIONS. (1) *Excavations Below Footings and Foundations.* No excavation _____ be made below the footing and foundation unless provisions are taken to prevent the collapse of the footing or foundation.

a. shall
b. should
c. may
d. can

Questions 48 to 53 (Refer to Review Materials SPS 321.15 Footings; SPS 321.16 Frost Penetration; SPS 321.17 Drain Tiles)

48. FOOTINGS. *Size and Type*. Unless designed by structural analysis, unreinforced concrete footings shall comply with the following requirements:

(a) Continuous footings. The minimum width of the footing on each side of the foundation wall shall measure at least _____ wider than the wall. The footing depth shall be at least 8 inches nominal. Footing placed in unstable soil shall be formed. Lintels may be used in place of continuous footings when there is a change in footing elevation. Note: Unstable soil includes soils that are unable to support themselves at a 90° angle for the full depth of the footing.

a. 2 inches
b. 4 inches
c. 6 inches
d. 8 inches

49. FOOTINGS. *Size and Type*. Unless designed by structural analysis, unreinforced concrete footings shall comply with the following requirement:
(b) Column or pier footing. 1. The minimum width and length of column or pier footings shall measure at least 2 feet by 2 feet.
2. The minimum depth of column or pier footings shall measure at least _____ nominal.

a. 8 inches
b. 10 inches
c. 12 inches
d. 16 inches

50. FOOTINGS. *Size and Type.* Footing for chimneys or fireplaces shall extend at least _____ on each side of the chimney or fireplace. The minimum depth shall measure at least 12 inches nominal.

a. 2 inches
b. 3 inches
c. 4 inches
d. None of the above

51. DRAIN TILE. *Material and Installation requirements for Required Systems.* (d) Drain tile or pipe installation. Drain tile or pipe used for foundation drainage shall comply with the following requirements:
1. a. Except as allowed under subd. 1. b., the top of the tile or pipe shall be at or below the top of the footing.
b. Where the top of the footing is more than _____ below the bottom of the floor slab, tile or pipe is required on the interior of the foundation only and it shall be placed directly under the floor.

Note: This situation will commonly occur with a walk−out basement.

a. 2 inches
b. 4 inches
c. 6 inches
d. 8 inches

52. FROST PROTECTION. *Exceptions.* (a) Frost protected shallow foundations shall be designed in accordance with ASCE–32 as adopted in Table SPS 320.24−5.

(b) Portions of footings or foundations located directly under window areaways do not require frost protection provided the rest of the foundation is protected in accordance with this section.

(c) Footings and foundations may bear directly on bedrock less than 40 inches below adjacent grade provided all of the following conditions are met.

1.The rock shall be cleaned of all earth prior to placement.

2. All clay in crevices of the rock shall be removed to the level of frost penetration or to 4 times the width of the rock crevice, whichever is less.

3. Provisions shall be taken to prevent water from collecting anywhere along the foundation.

a. True
b. False

53. DRAIN TILE. *Optional systems.* (a) *New construction.* 1. For new dwelling construction, a municipality or registered UDC inspection agency may determine the soil types and natural or seasonal groundwater levels for which a complete drain tile or pipe system is required.

2. For new dwelling construction, a municipality may not enact requirements for other than complete drain tile or pipe systems.

a. True
b. False

Questions 54 to 59 (Refer to Review Materials SPS 321.18 Foundations)

54. GENERAL. *Lateral support at base.* Lateral support such as floor slabs or framing shall be provided at the base of foundation walls.

a. True
b. False

55. GENERAL. *Anchor bolts.* Structural steel anchor bolts, at least ½ inch in diameter, embedded at least _____ into the concrete or grouted masonry with a maximum spacing of 72 inches and located within 18 inches of wall corners.

a. 4 inches
b. 5 inches
c. 7 inches
d. 9 inches

56. GENERAL. *Floor Framing*. 2. a. Where the floor framing is parallel to the foundation wall, solid blocking or bridging shall be installed in at least the first adjacent joist space at a spacing of no more than _____ on center.
b. Blocking and bridging shall be the same depth as the joist.
c. Fastening of the blocking or bridging shall be in accordance with structural analysis or the fastener schedule in Table 321.02-2.

a. 16 inches
b. 32 inches
c. 48 inches
d. 64 inches

57. MASONRY FOUNDATION WALLS. (a) *Dampproofing.* 1. Except as allowed under subd. 3., masonry block foundation walls shall be coated with a layer of minimum 3/8−inch thick type M or S portland cement mortar parging on the exterior of the wall from footing to finished grade.
2. Masonry foundation walls shall be damp−proofed by applying to the exterior surface of the portland cement parging from footing to finished grade, a continuous coating of (which of the following) _____:
(a) A bituminous coating applied in accordance with the manufacturer's instructions.
(b) Acrylic−modified cement applied at a minimum rate of 3 pounds per square yard.
(c) A layer of minimum 1/8−inch thick structural surface bonding material labeled as complying with ASTM C887.
Note: The ASTM C887 standard is entitled, "Standard Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar."
(d) A waterproofing treatment applied in accordance with the manufacturer's instructions.

a. (a) and (b)
b. (b), (c) and (d)
c. (a), (b) and (d)
d. All of the above - (a), (b), (c) and (d)

58. MASONRY FOUNDATION WALLS. (a) *Dampproofing.* 3. a. Parging of masonry block foundation walls is not required where a dampproofing material is sufficiently flexible to be listed or designed for direct application to masonry block.
b. Parging of masonry block foundation walls is not required where a layer of minimum 1/4−inch thick structural surface bonding material labeled as complying with ASTM C887 is used for dampproofing.

a. True
b. False

59. WOOD FOUNDATIONS. Wood foundations can be designed and constructed in accordance with the standard adopted in Table 320.24−2.
Note: The department shall not accept Permanent Wood Foundations Design and Construction Guide published by the Southern Forest Products Association through the Southern Pine Council, as complying with this standard. The Design and Construction Guide requires a 5-inch-thick floor slab if a poured concrete floor slab is used.

a. True
b. False

Questions 60 to 73 (Refer to Review Materials SPS 321.19 Floor Design; SPS 321.20 Concrete Floors; SPS 321.203 Garage Floors; SPS 321.205 Wood Floors in Contact with the Ground; SPS 321.21 Precast concrete floors; SPS 321.22 Wood Frame Floors; SPS 321.225 Decks)

60. WOOD FLOORS IN CONTACT WITH THE GROUND. Wood floors in contact with the ground shall comply with the requirements under s. SPS 321.18 (4).

a. True
b. False

61. CONCRETE FLOORS. When concrete floors are provided, the thickness of the concrete shall measure at least_____.

a. 2 inches
b. 3 inches
c. 4 inches
d. 5 inches

62. GARAGE FLOORS. The floor shall be sloped such that water is removed in accordance with _____:
(a) Water drains toward the overhead door or to exterior grade such that no damage will be caused to any structural member or wall covering of the garage or the dwelling.
(b) Water drains into an interior floor drain that complies with the requirements of ch. SPS 382.

a. None of the above
b. Only (a)
c. Only (b)
d. Both (a) and (b)

63. PRECAST CONCRETE FLOORS. Precast concrete floors _____ be designed through structural analysis, or load tables furnished by the precast product fabricator may be used, provided the load tables were developed using structural analysis or load testing.

a. shall
b. should
c. can
d. may

64. GARAGE FLOORS. Garage floors shall be constructed of concrete or other noncombustible materials which are impermeable to petroleum products. Slab−on−grade concrete garage floors shall be at least _____ thick and placed over at least _____ of granular fill.

a. 3 inches / 4 inches
b. 4 inches / 4 inches
c. 5 inches / 3 inches
d. 6 inches / 5 inches

65. WOOD FRAME FLOORS. Unless designed through structural analysis, wood frame floors shall comply with the following requirements:
(1) FLOOR JOISTS. (a) *General.* 1. Floor joists shall comply with the structural requirements and dead load determination under s. SPS 321.02.

a. True
b. False

66. WOOD FRAME FLOORS. *Bearing and End Configuration. (*a) Sawn lumber. 1. 'Joist.' Wood joists made of sawn lumber shall meet the following bearing requirements:
a. Wood joist supported on wood or metal shall have a bearing surface of at least _____ measured from the end of the joist.

a. 1 ½ inches
b. 2 inches
c. 2 ½ inches
d. 3 inches

67. WOOD FRAME FLOORS. *Girders and beams*. (d) Lateral restraint for all wood beams shall be provided at all columns using a saddle or other approved connection where the beam meets one of the following conditions:
1. The beam is not restrained at both ends.
2. The beam is more than 11.25 inches deep using actual measurement.
Note: A saddle supports the beam on the bottom and allows for the through−connection of fasteners into the side of the beam.

a. True
b. False

68. WOOD FRAME FLOORS. *Notching and Boring.* Notching and boring of beams or girders is _____.

a. permissible
b. prohibited
c. prohibited unless determined through structural analysis.
d. allowed provided it is less than a 2-inch notch or bore hole.

69. WOOD FRAME FLOORS. *Bearing and End Configuration.* (d) Wood floor joists with ends that intersect over a beam shall have the ends overlap at least _____ and be securely fastened together with at least two 12d common nails or the ends shall be butt−jointed or face−jointed and fastened with ties, straps, plates or solid blocking.

a. 3 inches
b. 4 inches
c. 6 inches
d. 8 inches

70. WOOD FRAME FLOORS. *Other Holes*. Holes bored in floor joists that are not within 2 inches of the top or bottom of the joist shall have their diameter limited to_____.

a. ¼ the depth of the joist
b. 1/3 the depth of the joist
c. ½ the depth of the joist
d. 2/3 the depth of the joist

71. WOOD FRAME FLOORS. *Floor Openings.* _____ shall be doubled when the span of the header exceeds 4 feet. Headers which span more than 6 feet shall have the ends supported by joist hangers or framing anchors, unless the ends are supported on a partition or beam. Tail joists (joists which frame into headers) more than 8 feet long shall be supported on metal framing anchors or on ledger strips of at least 2 inches by 2 inches nominal.

a. Trimmers
b. Headers
c. Trimmers and headers
d. none of the above

72. WOOD FRAME FLOORS. *Boring of Floor Joists*. A hole may not be bored in a floor joist within _____of a notch or another hole. In no case shall the distance between adjacent holes be less than the diameter of the larger hole.

a. 2 inches
b. 4 inches
c. 6 inches
d. 12 inches

73. (1) Decks attached to dwellings and any detached decks that serve an exit shall comply with the applicable provisions of sub chs. II to X of ch. SPS 321, including _____
(a) Excavation requirements under s. SPS 321.14;
(b) Footing requirements under s. SPS 321.15 (2) (f);
(c) Frost penetration requirements under s. SPS 321.16;
(d) Load requirements under s. SPS 321.02;
(e) Stair, handrail and guard requirements of s. SPS 321.04;
(f) Decay protection requirements of s. SPS 321.10.

a. (a), (c) and (e)
b. (b), (d) and (f)
c. (a), (b), (c), (d), (e) and (f)
d. (a), (c), (d) and (f)

Questions 74 to 101 (Refer to Review Materials SPS 321.24 Exterior covering; SPS 321.25 Wood Frame Walls)

74. EXTERIOR COVERING. *Flashing*. (c) 1. Any joints between 2 pieces of flashing that form a vertical joint shall be lapped a minimum of 6 inches and sealed.
2. Any joints between 2 pieces of flashing that form a horizontal joint shall be lapped a minimum of 2 inches and sealed unless otherwise specified by the flashing manufacturer.
3. Sealants used for flashing _____ grade and shall be compatible with the materials being sealed.

a. shall be exterior
b. can be exterior
c. can be any
d. none of the above

75. EXTERIOR COVERING. *During construction.* During construction, wall cavity insulation_____ be installed until a water–resistant covering is in place over the wall cavity and windows, doors and a roof with at least underlayment are installed.
Note: An example of acceptable water–resistant covering for a wall is foam sheathing with permanently taped joints.

a. may
b. can
c. may not
d. should

76. EXTERIOR COVERING. (d) *Application.*
1. Horizontal seams in sheet or strip material shall be overlapped such that the upper layer extends over the lower layer at least 2 inches.
2. Vertical seams in sheet or strip materials shall be overlapped at least 6 inches.
3. Any rips, tears or voids shall be patched in accordance with subds. 1. and 2.

a. True
b. False

77. EXTERIOR COVERING. (c) *Performance requirements.* 1. Polymer−based house wraps shall meet one of the following requirements:
a. A water vapor permeability rating of 4 perms or higher when tested in accordance with ASTM E96.
b. An acceptable water−resistance rating determined in accordance with ASTM D779, AATCC 127 or CCMC 07112.
Note: Asphalt−saturated felt or "tar paper" is not a polymeric−based house wrap.
Note: For more information on the water−resistance tests and their results, see the International Code Council Evaluation Services Acceptance Criteria AC 38.
2. Spray−applied water−resistive barriers shall be approved under the International Code Council Evaluation Services.
Note: For approval criteria, see ICC−ES acceptance criteria AC 212 or successor document.

a. True
b. False

78. EXTERIOR COVERING. *Water-resistive barrier requirements.* (a) *General.*
1. Exterior walls of wood or metal frame construction shall be provided with a water−resistive barrier from the highest point to the bottom of the permanent weather−resistant covering.
Note: Acceptable water−resistive barrier materials include polymeric−based house wraps and spray−applied water−resistive barriers installed per the manufacturer's instructions, #15 or greater asphalt−saturated felts that comply with ASTM D 226 for type I felt and extruded foam sheathing with permanently taped joints. Duct tape or similar will not result in a permanently taped joint.
2. Structural products with an integral water−resistive barrier may be approved by the department as a complete assembly.
(b) *Material compatibility.* The water−resistive barrier material shall be compatible with the other materials in the wall with which it will come into contact.
Note: Spray−applied water−resistive barriers may not be compatible with foam plastic insulation.

a. True
b. False

79. EXTERIOR COVERING. (e) *Penetrations.* 1. Penetrations caused by fasteners of the water−resistive barrier or the weather−resistant exterior covering do require sealing.
2. Penetrations of 3 square inches or less with an annular space of no more than 1/2 inch shall be sealed with caulk or similar material.
3. Penetrations of greater than 5 square inches shall be flashed in accordance with sub. (3).

a. True
b. False

80. WOOD FRAME WALLS. *Notching and boring.* 1. When piping or ductwork is placed in an exterior wall or an interior load−bearing wall, such that at least half of the top plate is removed, the plate shall be reinforced with a steel angle at least _____ by 20 gauge thick.
Note: 20 gauge is approximately 0.036 inch.

a. 2 inches by 2 inches
b. 3 inches by 3 inches
c. 4 inches by 4 inches
d. None of the above

81. WOOD FRAME WALLS. *(3) WALL OPENINGS. (am)Headers.* Where doors and windows occur, headers can be used to carry the load across the opening.
(bm) *Header size.* The size of headers shall be determined in accordance with the spans and loading conditions listed in Tables 321.25−B, 321.25−C and 321.25−D. Headers for longer spans can be designed by an engineering method under s. SPS 321.02.

a. True
b. False

82. WOOD FRAME WALLS. *Top plates.* (a) *General.* Except as allowed under subd. 3., top plates shall be provided and configured as follows:
1. Studs at bearing walls shall not be capped with double top plates.
2. End joints in double top plates shall be offset at least 3 stud spaces.
3. Double top plates shall be overlapped at the corners and at intersections of partitions.
4. The plate immediately above the stud may have a joint only when directly over the stud.

a. True
b. False

83. WOOD FRAME WALLS. *Posts and Columns.* 4. All columns shall be positively attached to the beams they support using clips, straps or saddles.

a. True
b. False

84. WOOD FRAME WALLS. *Foundation Cripple Walls.*
(a) Foundation cripple walls shall be framed with studs at least as large as the studs above.
(b) When more than 4 feet in height, cripple walls shall be framed with studs needed for an additional floor level.
(c) Cripple walls with a stud height of less than 14 inches shall be sheathed on at least one side for its entire length with a wood structural panel that is fastened to both the top and bottom plates or the cripple walls shall be constructed of solid blocking.
(d) Cripple walls with a stud height of 14 inches or greater shall be braced in accordance with sub. (8).
(e) Cripple walls shall be fully supported by a continuous foundation.

a. (a) and (c)
b. (b), (c) and (d)
c. (a), (c), (d) and (e)
d. (a), (b), (c), (d) and (e)

Refer to Table 321-25-A Size, Height and Spacing of Wood Studs-A (*for questions 85 through 88)*

85. Using a Nominal Size 2X4, what is the maximum spacing allowed when supporting a roof and ceiling (only)?

a. 14”
b. 24”
c. 16”
d. 10”

86. Using a Nominal Size 2X4, what is the maximum spacing allowed when supporting one floor, roof and ceiling?

a. 14”
b. 24”
c. 16”
d. 10”

87. Using a Nominal Size 2X6, what is the maximum spacing allowed when supporting one floor, roof and ceiling?

a. 14”
b. 24”
c. 16”
d. 10”

88. Using a Nominal Size 2X6, what is the maximum spacing allowed when supporting two floors, roof and ceiling?

a. 14”
b. 24”
c. 16”
d. 10”

89. WOOD FRAME WALLS. *WALL BRACING.* (a) *General.* Dwellings using wood− framed walls shall be braced in accordance with this section. Where a building, or a portion thereof, does comply with all of the bracing requirements in this section, those portions can be designed and constructed in accordance with accepted engineering practice.

a. True
b. False

Refer to Table 321.25-B Allowable Spans for Headers Supporting Roof/Ceiling Assemblies (*for questions 90 through 93)*

90. What is the maximum width allowed for header members on a house 26’ in width; using two 2X6’s; in zone 2? (Refer to SPS 321.02 for the counties in each zone)

a. 2’
b. 3’
c. 4’
d. 5’

91. What is the maximum width allowed for header members on a house 28’ in width; using two 2X6’s; in zone 1? (Refer to SPS 321.02 for the counties in each zone)

a. 2’
b. 3’
c. 4’
d. 5’

92. What is the maximum width allowed for header members on a house 28’ in width; using two 2X12’s; in zone 1? (Refer to SPS 321.02 for the counties in each zone)

a. 5’
b. 6’
c. 7’
d. 8’

93. What is the maximum width allowed for header members on a house 26’ in width; using two 2X10’s; in zone 2? (Refer to SPS 321.02 for the counties in each zone)

a. 5’
b. 6’
c. 7’
d. 8’

Refer to Table 321.25-D Allowable Spans for Headers Supporting One Floor and Roof/Ceiling Assembly (*for questions 94 through 97)*

94. What is the maximum width allowed for header members on a house 26’ in width; using two 2X10’s; in zone 2? (Refer to SPS 321.02 for the counties in each zone)

a. 2.5’
b. 3’
c. 4’
d. 5’

95. What is the maximum width allowed for header members on a house 32’ in width; using two 2X12’s; in zone 1? (Refer to SPS 321.02 for the counties in each zone)

a. 2.5’
b. 3’
c. 4’
d. 5’

96 What is the maximum width allowed for header members on a house 32’ in width; using two 2X8’s; in zone 2? (Refer to SPS 321.02 for the counties in each zone)

a. 2.5’
b. 3’
c. 4’
d. 5’

97. What is the maximum width allowed for header members on a house 32’ in width; using two 2X6’s; in zone 2? (Refer to SPS 321.02 for the counties in each zone)

a. 2.5’
b. 3’
c. 4’
d. 5’

98. WOOD FRAME WALLS. *Wall Bracing.* (c) *Bracing amount.* Bracing methods and materials complying with Table 321.25–G shall be applied to walls in accordance with the following requirement:
6. Balloon−frame walls may be no longer than 21 feet and shall have a maximum height of two floors unless constructed in accordance with an approved design. Wall framing shall be continuous from the lowest floor to the wall top plate at the roof. All edges of sheathing shall be supported on and fastened to blocking or framing. Braced wall panels may not be required on the balloon− frame wall portion provided the bracing amount and brace spacing requirement are satisfied for the building side. Where brace panels are located on the balloon−frame wall portion, they shall have a height−to−width ratio of not more than 2.5:1.

a. True
b. False

99. WOOD FRAME WALLS. *Wall Bracing.* (c) *Bracing amount.* Bracing methods and materials complying with Table 321.25–G shall be applied to walls in accordance with the following requirement:
7. For a gable end wall, if the brace−panel height does not exceed _____ at the highest portion and if the 12½−foot and 21−foot spacing requirements in Figure 321.25–C are met, the wall is adequately braced. Where a brace panel exceeds _____ in height, it shall have a height−to−width ratio of not more than 2.5:1, and comply with Figure 21.25–C.

a. 12 feet / 10 feet
b. 10 feet / 12 feet
c. 12 feet / 12 feet
d. 12 feet / 14 feet

100. Refer to Table 321.25-G Bracing Methods
An approved metal brace installed per the manufacturers instruction may be used as Let-in Bracing in a nominal wall height of 10’.

a. True
b. False

101. WOOD FRAME WALLS. *Wall Bracing.* (c) *Bracing amount.* Bracing methods and materials complying with Table 321.25–G shall be applied to walls in accordance with the following requirement:
2. In no case may the amount of bracing be _____ braced wall panels on walls parallel to each rectangle side for each floor level of the building.

a. determined by
b. less than one
c. less than two
d. none of the above

Questions 102 to 120 (Refer to Review Materials SPS 321.26 Masonry Walls; SPS 321.27 Roof Design and Framing; SPS 321.28 Weather Protection for Roofs; SPS 321.29 Masonry Fireplaces; SPS 321.30 Masonry Chimneys; SPS 321.32 Factory-built Fireplaces; SPS 321.33 Construction in Floodplains and SPS 321.40 Installation of Manufactured Homes/Installation Standards)

102. MASONRY WALLS. *Types of Mortar*. (a) *Mortar specifications.* The type of mortar shall be determined from Table 321.26−A. The mortar shall conform to the requirements of ASTM C−270.

(b) *Surface bond mortars.* Surface bond mortars for masonry walls shall be mixed in accordance with the proportions specified on the bag.

a. True
b. False

103. MASONRY WALLS. *Cold Weather Work*. When ambient air temperature is below _____, the cold weather construction procedures under ACI 530.1 shall be followed.

Note: The requirements for cold weather work are in sections 1.8 and 1.8C of the 2005 edition of the ACI standard.

a. 40 degrees
b. 35 degrees
c. 30 degrees
d. 25 degrees

104. MASONRY WALLS. *Flashing*. *(b) Location.* 1. 'Lintels and chimneys.' In exterior hollow masonry walls, flashing shall be installed at the backsides of chimneys and at the bottom of the cavity formed by openings such as lintels over doors and windows.

a. True
b. False

105. MASONRY WALLS. *Masonry Veneers. 6.* _____ behind masonry veneer shall be covered with material used to construct the water−resistive barrier as required under s. SPS 321.24 (4).
Note: Acceptable water−resistive barrier materials include polymeric−based house wraps and #15 or greater asphalt−saturated felts that comply with ASTM D 226 for type I felt.

a. Studs
b. Sheathing
c. Studs and sheathing
d. None of the above

106. ROOF DESIGN AND FRAMING. *Uplift and Suction Forces. Anchorage.* 1. Roof framing members spanning more than 8 feet measured from the outermost edge of the roof shall be permanently fastened to the top plate of load bearing walls using engineered clips, straps or hangers.
2. Roof framing members spanning 4 feet or less measured from the outermost edge of the roof shall be permanently fastened to the top plate of load bearing walls using toe−nailing or engineered clips, straps or hangers.

a. True
b. False

107. ROOF DESIGN AND FRAMING. *Structural Design. Applicability of tables.* The joist and rafter tables in the ch. SPS 325 Appendix A are valid for roofs with a minimum slope of 3 in 12. Lesser slopes require engineering analysis or shall be provided with a ridge beam.

a. True
b. False

108. WEATHER PROTECTION FOR ROOFS. *Asphalt Shingles.*
Shingles shall have at least_____ fasteners per strip shingle or 2 fasteners per interlocking shingle, unless the manufacturer has other specifications.

a. 2
b. 3
c. 4
d. 5

109. WEATHER PROTECTION FOR ROOFS. *Chimney flashing.*
1. Chimneys shall be flashed and counter−flashed to a height of at least 6 inches.
2. Chimney crickets or saddles shall be installed where the upper side of a chimney is more than _____ wide on a sloping roof.
3. The intersection of the cricket and the chimney shall be flashed and counter−flashed to a height of at least 6 inches.

a. 20 inches
b. 25 inches
c. 30 inches
d. 35 inches

110. WEATHER PROTECTION FOR ROOFS. *Reroofing.* New roof coverings may be installed over existing roof coverings where all of the following conditions exist:
(a) The existing roof or roof covering is water−soaked or has deteriorated such that it is inadequate as a base for additional roofing.
(b) The existing roof is wood shake, slate, clay, cement or asbestos−cement tile.
(c) The existing roof has 2 or more applications of any type of permanent roof covering.

a. True
b. False

111. MASONRY FIREPLACES. *Flue Liners*. Flue liners shall start at the top of the fireplace throat and extend to a point at least_____ above the top of the chimney cap.

a. 4 inches
b. 6 inches
c. 7 inches
d. 8 inches

112. MASONRY FIREPLACES. *Termination of chimneys.* Masonry fireplace chimneys shall extend at least 3 feet above the highest point where the chimney passes through the roof and at least 2 feet higher than any portion of the dwelling within _____of the chimney.

a. 8 feet
b. 10 feet
c. 12 feet
d. 14 feet

113. MASONRY CHIMNEYS. *Corbeling*. Unless designed through structural analysis, masonry chimneys shall not be corbeled from a wall more than 6 inches nor shall a masonry chimney be corbeled from a wall less than _____ in nominal thickness unless it projects equally on each side of the wall. The corbeling shall not exceed one−inch projection for each brick course.

a. 6 inches
b. 8 inches
c. 10 inches
d. 12 inches

114. FACTORY-BUILT FIREPLACES. Factory built fireplaces consisting of a _____ and other parts shall be tested and listed by a nationally recognized testing laboratory.
1. fire chamber assembly
2. one or more chimney sections
3. a roof assembly

a. #1 and 3
b. # 1and 2
c. # 1, 2 and 3
d. #2 and 3

115. CONSTRUCTION IN FLOODPLAINS. *Protection of Electrical and Mechanical Systems.* Electrical and mechanical equipment shall be placed _____ the base flood elevation or shall be designed to prevent water contact with the equipment in case of a flood up to the base flood elevation.

a. at
b. below
c. above
d. None of the above

116. INSTALLATION OF MANUFACTURED HOMES. INSTALLATION STANDARDS. *Produced Before April 1, 2007.* (a) Except as provided in par. (b), the installation of a manufactured home produced before April 1, 2007 shall be installed in conformance with the requirements in effect at the time the manufactured home was produced.

a. True
b. False

117. INSTALLATION OF MANUFACTURED HOMES. INSTALLATION STANDARDS. *Produced Before April 1, 2007.* Piers shall be placed under the main frame of the chassis at intervals of not more than _____ and no more than 3 feet from the exterior side of each end wall. The 7–foot spacing requirement may be varied as permitted by footing, spacing and soil capacity tables provided by the home manufacturer.

a. 5 feet on-center
b. 6 feet on-center
c. 7 feet on-center
d. 8 feet on-center

118. INSTALLATION OF MANUFACTURED HOMES. INSTALLATION STANDARDS. *Produced Before April 1, 2007.* 5. Each footing shall consist of one of the following: c. An 18–inch diameter hole bored to below the frost line or to unfractured bedrock and filled with poured concrete.

a. True
b. False

119. INSTALLATION OF MANUFACTURED HOMES. INSTALLATION STANDARDS. *Produced Before April 1, 2007.* Wood caps and shims shall be at least equal to No. 2 spruce pine fir having a minimum fiber bending stress rating of 1400 psi. All wood caps shall be the same species of wood, and all shims shall be the same species of wood.

a. True
b. False

120. INSTALLATION OF MANUFACTURED HOMES. INSTALLATION STANDARDS. *Produced Before April 1, 2007.* The home site may be graded to permit water to drain from under the home and away from the home for a minimum of 3 feet from the home.

a. True
b. False