



# **COURSE 16190**

## **Construction Standards**

### **Exam Material**

**Uscontractorlicense LLC**

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## Summary Of This Course

## Construction Standards

Approved by the

Wisconsin Department of Safety and Professional Services Safety and Buildings Division

Course Identification Number 16190

Educational Credit Hours: 8

Course Provider:

## USCONTRACTORLICENSE LLC

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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 approved for the following Registrations/Certifications or Licenses:

## **Course Outline**

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

### **Outline of Course**

SPS 321.01 Scope.

Subchapter II – Design Criteria

SPS 321.02 Loads and materials.

SPS 321.03 Exits.

SPS 321.035 Interior circulation.

SPS 321.04 Stairways and elevated areas.

SPS 321.042 Ladders.

SPS 321.045 Ramps.

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.

SPS 321.085 Fireblocking.

SPS 321.09 Smoke detectors.

SPS 321.095 Automatic fire sprinklers.

SPS 321.10 Protection against decay and termites.

SPS 321.11 Foam plastic.

SPS 321.115 Installation of elevators or dumbwaiters.

Subchapter III – Excavations

SPS 321.12 Grade.

SPS 321.125 Erosion control and sediment control.

SPS 321.126 Storm water management.

SPS 321.13 Excavations adjacent to adjoining property.

SPS 321.14 Excavations for footings and foundations.

Subchapter IV – Footings

SPS 321.15 Footings.

SPS 321.16 Frost protection.

SPS 321.17 Drain tiles.

Subchapter V – Foundations

SPS 321.18 Foundations.

Subchapter VI – Floors

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.

Subchapter VII – Walls

SPS 321.23 Wall design.  
SPS 321.24 Exterior covering.  
SPS 321.25 Wood frame walls.  
SPS 321.26 Masonry walls.

Subchapter VIII – Roof and Ceilings  
SPS 321.27 Roof design.  
SPS 321.28 Weather protection for roofs.

Subchapter IX – Fireplace Requirements  
SPS 321.29 Masonry fireplaces.  
SPS 321.30 Masonry chimneys.  
SPS 321.32 Factory-built fireplaces.

Subchapter X – Construction in Floodplains  
SPS 321.33 Construction in floodplains.  
SPS 321.34 Construction in coastal floodplains.

Subchapter XI – Installation of Manufactured Homes  
SPS 321.40 Installation standards

## **Exam**

240 questions related to the reference materials are used to test the attendee on their comprehension of the materials. A 70% score will need to be attained in order to pass this course.

## **Answer Sheet(s)**

2 bubble style answer sheet(s) are included. When you are finished with the exam, you may return the answer sheets for grading to:

By Mail: Uscontractorlicense LLC  
PO Box 268  
Platteville, Wisconsin 53818

By Email: michael@uscontractorlicense.com  
By Fax: 608-571-0096

Once we get the answer sheets back, we will grade them, enter your hours into the attendance portal and email or mail you back your certificate of completion(s). You will be responsible for renewing your license with the DSPS at [www.license.wi.gov](http://www.license.wi.gov) website.

Any questions, please contact us at 608.348.6688

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Questions 1 to 10 (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. \_\_\_\_\_.** **1. Floors and ceilings.** Floors and ceilings shall be designed and constructed to support the minimum live loads listed in Table 321.02. The design load shall be applied uniformly over the component area.

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

**3. \_\_\_\_\_.** 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

**4. STRUCTURAL STANDARDS. (h) Fasteners.** All building components shall be fastened to withstand the snow load, \_\_\_\_\_.

- a. Dead load
- b. Wind load
- c. Live load
- d. All of the above

**5. \_\_\_\_\_.** Every dwelling shall be designed and constructed to support the actual weight of all components and materials. Earth-sheltered dwellings shall be designed and constructed to support the actual weight of all soil loads.

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

**6. \_\_\_\_\_.** 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

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

- a. True
- b. False

**8. 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

**9. 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

**10. STRUCTURAL STANDARDS. Whole logs. Dwellings constructed of whole logs shall conform to ICC 600, Standard on the Design and Construction of Log Structures.**

**Note: This standard requires the minimum log diameter to be 12 inches.**

- a. True
- b. False

Questions 11 to 29 (Refer to Review Materials SPS 321.03 Exits and 321.035 Interior Circulation)

**11. DOORS USED FOR EXITING. 4. (b) All exit doors shall be openable from the interior without the use of a key.**

- a. True
- b. False

**12. 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

**13. EXITS FROM THE FIRST FLOOR. (a) Except as allowed under par. (h), every dwelling unit shall be provided with at least \_\_\_\_\_ exit doors accessible from the first floor.**

- a. one
- b. two
- c. three
- d. none of the above

**14. 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

**15. TWO-FAMILY DWELLINGS. In a 2-family dwelling, each dwelling unit \_\_\_\_\_ provided with exits in compliance with this section.**

- a. shall be
- b. can be
- c. may be
- d. could be

**16. WINDOWS USED FOR EXITING (b) 1. The nominal size of the net clear window opening shall be \_\_\_\_\_ irrespective of height or width. Nominal dimensions shall be determined by rounding up fractions of inches if they are 1/2-inch or greater or rounding down fractions of inches if they are less than 1/2-inch.**

- a. not more than 20 inches by 24 inches
- b. at least 22 inches by 24 inches
- c. at least 20 inches by 24 inches
- d. not more than 24 inches by 20 inches

**17. 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

**18. 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

**19. WINDOWS USED FOR EXITING (d)** 1. For any window used for exiting, the lowest point of clear opening shall be no more than \_\_\_\_\_ above the floor.

- a. 30 inches
- b. 48 inches
- c. 50 inches
- d. 60 inches

**20. EXITS ABOVE THE SECOND FLOOR.** (a) Except as provided under pars. (b) and (c), each habitable floor above the second floor shall be provided with at least 2 exits that meet all of the following requirements:

1. The exits shall be \_\_\_\_\_ that lead to the second floor or discharge to grade.

2. The exits shall be located such that an exit is accessible to the second floor if another exit is blocked.

- a. ramps
- b. stairways
- c. stairways or ramps
- d. none of the above

**21. BALCONIES:** Balconies which are required for exit purposes shall also comply with all of the following requirements:

1. The balcony guardrail shall terminate no more than 46 inches above the floor level of the balcony.

2. The floor level of the balcony shall be no more than \_\_\_\_\_ above the grade below.

3. The floor of the balcony shall have minimum dimensions of 3 feet by 3 feet. The guard and its supports may infringe on the dimensions of the required area no more than 4.5 inches.

- a. 10 feet
- b. 15 feet
- c. 18 feet
- d. 20 feet

**22. EXITS FROM LOFTS.** At least one stairway exit shall be provided, to the floor below, for a loft exceeding \_\_\_\_\_ square feet in area. At least one stairway or ladder exit shall be provided to the floor below for a loft, 400 square feet or less, in area.

- a. 300
- b. 400
- c. 450
- d. 500

**23. 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

**24. EXITS FROM BASEMENTS AND GROUND FLOORS.** (a) General. Except as provided in par. (b), all basements and ground floors shall be provided with at least \_\_\_\_\_ of the following types:

1. A door to the exterior of the dwelling.

2. A stairway or ramp that leads to the floor above.

- a. one exit
- b. two exits
- c. three exits
- d. none of the above

**25. 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

**26. EXITS FROM THE SECOND FLOOR.** (a) At least 2 exits shall be provided from the second floor. At least one of the exits shall be a stairway or ramp and lead to the first floor or discharge to grade. The second exit may be via a stairway or ramp that discharges to grade, or to a balcony which complies with sub. (8), or to a deck that complies with s. SPS 321.225 and that is \_\_\_\_\_ above the grade below.

- a. no more than 12 feet
- b. no more than 13 feet
- c. no more than 14 feet
- d. no more than 15 feet

**27. 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

**28. DOORS AND OPENINGS.** All doors and openings to the following areas shall be \_\_\_\_\_ 80 inches high and provide either a net clear opening width of 30 inches or be a 32–inch door:

(a) Except as provided under pars. (b) and (c), all entrances into common use areas.  
(b) At least 50% of the bedrooms.  
(c) 1. At least one full bathroom, including doors or openings to a sink, toilet and tub or shower. If this bathroom is accessible only through a bedroom, the bedroom door shall meet the minimum width requirements of this section.

2. If one or more full bathrooms are provided on the first floor, the bathroom meeting the requirements under this section shall be on the first floor.

**Note:** This section does not require a full bathroom on the first floor.

- a. at least
- b. no more than
- c. a maximum of
- d. none of the above

**29. 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

Questions 30 to 70 (Refer to Review Materials SPS 321.04  
Stairways and Elevated Areas)

**30. LANDINGS.** (c) Doors at landings. Except as provided in subds. 1. to 3. and par. (d), level landings shall be provided on each side of any door located at the top or base of a stair, regardless of the direction of swing. In the following exceptions, a stairway between a dwelling and an attached garage, carport or porch is considered to be an interior stair:  
1. A landing is not required between the door and the top of interior stairs if the door does not swing over the stairs.  
2. A landing is not required between the door and the top of an interior stairs of 1 or 2 risers regardless of the direction of swing.  
3. A landing is not required between a sliding glass door or an in–swinging glass door and the top of an exterior stairway of 3 or fewer risers.

- a. True
- b. False

**31. 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

**32. DETAILS. (a) Width.** **1. Except for spiral staircases under subd. 2., stairways shall measure at least \_\_\_\_\_ in width.**

- a. 32 inches
- b. 34 inches
- c. 36 inches
- d. 40 inches

**33. SCOPE. (a) General.** Except as provided under par. (b), the following stairways shall conform to the requirements of this section.

- 1. Every interior and exterior stairway attached to, or supported by any part of the structure covered under this code.
- 2. Tub access steps, unless they are an integral part of an approved plumbing product.

**(b) Exceptions.** The following stairways are not required to comply with the requirements of this section:

- 1. Stairways leading to non-habitable attics or crawl spaces.
- 2. Non-required stairways connecting the basement directly to the exterior of the structure without communicating with any other part of the structure.

- a. True
- b. False

**34. 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

**35. 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

**36. 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

**37. DETAILS. 4. 'Individual winder treads.'** **a. An individual winder tread may be placed between rectangular treads or at the end of a flight of rectangular treads provided the tread depth, measured at a point 12 inches from the narrow end, is equal to the tread depth of the rectangular steps in the flight.**

- b. There may be more than one individual winder tread in a stairway or in a flight of stairs.**
- c. Winder treads may be used on a straight stairway.**

- a. True
- b. False

**38. DETAILS. (b) Riser height.** Except for spiral staircases under subd. 2, risers may not exceed \_\_\_\_\_ in height measured vertically from tread to tread.

- a. 7.5 inches
- b. 8 inches
- c. 8.5 inches
- d. 9 inches

**39. HANDRAILS AND GUARDS. (a) General. 5. Exterior**  
\_\_\_\_\_ shall be constructed of metal, decay resistant or pressure-treated wood, or shall be protected from the weather.

- a. handrails
- b. guards
- c. handrails and guards
- d. none of the above

**40. HANDRAILS AND GUARDS. Handrails. 1. 'Height.'** Handrails shall be located at least 30 inches, but no more than \_\_\_\_\_ above the nosing of the treads, except as provided in subds. 1. b. to d. Measurement shall be taken from the hard-structural surface beneath any finish material to the top of the rail. Variations in uniformity are allowed only when a rail contacts a wall or newel post or where a turnout or volute is provided at the bottom tread.

- a. 36 inches
- b. 38 inches
- c. 40 inches
- d. 42 inches

**41. DETAILS. (b) Riser height.** At the \_\_\_\_\_ of a flight, measurement shall be taken from the top of the nosing to the finished floor surface unless the finished surface is carpeting, in which case measurement shall be made to the hard surface below the carpeting.

- a. top
- b. bottom
- c. top and bottom
- d. none of the above

**42. DETAILS. (b) Riser height.** Risers in spiral staircases may not exceed \_\_\_\_\_ in height measured vertically from tread to tread.

- a. 7.5 inches
- b. 8 inches
- c. 9 inches
- d. 9.5 inches

**43. DETAILS. Tread depth. 1. 'Rectangular treads.'** Rectangular treads shall have minimum tread depth of \_\_\_\_\_ measured horizontally from nosing to nosing.

- a. 8.5 inches
- b. 9 inches
- c. 9.5 inches
- d. 10 inches

**44. LANDINGS. (a) Intermediate landings. 4. Curved or irregular landings** shall have a minimum straight line measurement of \_\_\_\_\_ between the nosing of the 2 connecting treads measured at a point 18 inches from the narrow end of the landing measured along the nosing of the 2 treads.

- a. 20 inches
- b. 24 inches
- c. 26 inches
- d. 28 inches

**45. LANDINGS. (b) Landings at the top and base of stairs.** A level landing shall be provided at the \_\_\_\_\_ of every stairs except as provided in par. (d). The landing shall be at least as wide as the treads and shall measure at least 3 feet in the direction of travel.

- a. top
- b. base
- c. top and base
- d. none of the above

**46. DETAILS. 'Spiral staircase treads.'** Spiral staircase treads shall have a \_\_\_\_\_ from nosing to nosing measured at a point 12 inches from the outer edge of the center column.

- a. minimum tread depth of 7 inches
- b. maximum tread depth of 7 inches
- c. minimum tread depth of 9 inches
- d. maximum tread depth of 9 inches

**47. DETAILS. (d) Headroom.** Stairways shall be provided with a minimum headroom clearance of \_\_\_\_\_ measured vertically from a line parallel to the nosing of the treads to the ceiling, soffit or any overhead obstruction directly above that line.

- a. 6 feet
- b. 76 inches
- c. 6.5 feet
- d. 80 inches

**48. DETAILS. (d) Headroom.** The headroom clearance \_\_\_\_\_ maintained over an intermediate landing.

- a. may be
- b. can be
- c. could be
- d. shall be

**49. HANDRAILS AND GUARDS (b) Handrails 5. 'Size and configuration.'** Handrails shall be symmetrical about the vertical centerline to allow for equal wraparound of the thumb and fingers.

- a. symmetrical
- b. asymmetrical
- c. unbalanced
- d. none of the above

**50. LANDINGS. (a) Intermediate Landings.** 2. Intermediate landings that connect 2 or more straight flights of stairs, or 2 flights of stairs at a right angle, shall be at least as wide as the treads and shall measure at least \_\_\_\_\_ in the direction of travel.

- a. 30 inches
- b. 36 inches
- c. 38 inches
- d. 40 inches

**51. LANDINGS. (a) Intermediate Landings.** 3. Curved or irregular landing shall have a radius of at least \_\_\_\_\_.

- a. 30 inches
- b. 32 inches
- c. 34 inches
- d. 36 inches

**52. DETAILS. (d) Headroom.** 3. The headroom clearance shall be maintained over a landing that is at the top or bottom of a stairway for a \_\_\_\_\_ in the direction of travel of the stairway.

- a. maximum distance of 36 inches
- b. minimum distance of 36 inches
- c. maximum distance of 40 inches
- d. minimum distance of 40 inches

**53. HANDRAILS AND GUARDS. General.** 2. Guards shall be provided on all open sides of stairs consisting of more than 3 risers and on all open sides of areas that are elevated more than \_\_\_\_\_ above the floor or exterior grade.

**Note:** A handrail provided at 30 to 38 inches above the tread nosing meets the height requirement for a guard on a stairway.

- a. 20 inches
- b. 22 inches
- c. 24 inches
- d. 26 inches

**54. HANDRAILS AND GUARDS. General.** 3.a. Except as provided in subd. 3. b., guards shall be constructed to prevent the through-passage of a sphere with a diameter of \_\_\_\_\_, when applying a force of 4 pounds.

b. The triangular area formed by the tread, riser and bottom rail shall have an opening size that prevents the through-passage of a sphere with a diameter of 6 inches, when applying a force of 4 pounds.

- a. 4 3/8 inches
- b. 6 1/8 inches
- c. 8 1/2 inches
- d. 10 inches

**55. 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

**56. DETAILS. (f) Open risers.** Stairways with open risers shall be constructed to prevent the through passage of a sphere with a diameter of \_\_\_\_\_ or larger between any 2 adjacent treads.

- a. 4 inches
- b. 4.5 inches
- c. 5 inches
- d. 6 inches

**57. 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

**58. DETAILS. Uniformity.** 1. Within a stairway flight, the greatest tread depth may not exceed the smallest tread depth by more than 3/8 inch and the greatest riser height may not exceed the smallest riser height by more than 3/8 inch.

- a. True
- b. False

**59. 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

**60. HANDRAILS AND GUARDS. Handrails.** 6. Continuity. Handrails shall be continuous for the entire length of the stairs except in any one of the following cases: \_\_\_\_\_

1. A handrail may be discontinuous at an intermediate landing.  
2. A handrail may have newel posts.  
3. A handrail may terminate at an intermediate wall provided the lower end of the upper rail is returned to the wall or provided with a flared end, the horizontal offset between the 2 rails is no more than 12 inches measured from the center of the rails, and both the upper and lower rails can be reached from the same tread without taking a step.

- a. #1 only
- b. #2 only
- c. # 3 only
- d. All the above...1, 2 and 3

**61. HANDRAILS AND GUARDS. General.** 1. A flight of stairs with more than \_\_\_\_\_ shall be provided with at least one handrail for the full length of the flight.

- a. 2 risers
- b. 3 risers
- c. 4 risers
- d. 6 risers

**62. HANDRAILS AND GUARDS. General.** 4.a Handrails shall be designed and constructed to withstand a \_\_\_\_\_ load applied in any direction.

- a. 150 pound
- b. 175 pound
- c. 200 pound
- d. 225 pound

**63. HANDRAILS AND GUARDS. Guards.** 2. 'Height.' Guards shall extend to at least \_\_\_\_\_ above the floor or to the underside of a stair handrail complying with s. SPS 321.04 (3) (b). Measurement shall be taken from the hard-structural surface beneath any finish material to the top of the guard.

- a. 30 inches
- b. 36 inches
- c. 40 inches
- d. 48 inches

**64. HANDRAILS AND GUARDS. Handrails.** 5.a. Handrails with a round or truncated round cross sectional gripping surface shall have a maximum whole diameter of \_\_\_\_\_.

- a. 2 inches
- b. 2.5 inches
- c. 3 inches
- d. 3.5 inches

**65. HANDRAILS AND GUARDS. Handrails.** 2. Clearance The clearance between a handrail and the wall surface shall be \_\_\_\_\_.

- a. at least 1 inch.
- b. at least 1.5 inches.
- c. no more than 2 inches.
- d. at least 2 inches.

**66. 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

**67. HANDRAILS AND GUARDS. Guards 1.c. For exterior applications, the 12-inch vertical measurement shall be taken from the lowest point within 2 feet horizontally from the edge of the deck, landing, porch or similar structure.**

- a. True
- b. False

**68. 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

**69. HANDRAILS AND GUARDS. Doors and Landings 3. A landing is required between a sliding glass door or an in–swinging glass door and the top of an exterior stairway of 5 or fewer risers.**

- a. True
- b. False

**70. SCOPE. (b) Exceptions. The following stairways are not required to comply with the requirements of this section:**  
**1. Stairways leading to non–habitable attics or crawl spaces.**  
**2. Non–required stairways connecting the basement directly to the exterior of the structure without communicating with any other part of the structure.**

- a. True
- b. False

**71. The ladder shall have a minimum clearance of at least \_\_\_\_\_ on either side of the center of the tread.**

- a. 10 inches
- b. 12 inches
- c. 14 inches
- d. 15 inches

**72. Ladders shall be designed to withstand loads of at least \_\_\_\_\_.**

- a. 150 pounds
- b. 175 pounds
- c. 200 pounds
- d. 250 pounds

**73. Open handrails may be provided with intermediate rails or an ornamental pattern such that a sphere with a diameter of 9 inches or larger cannot pass through.**

- a. True
- b. False

**74. The edge of the tread nearest to the wall behind the ladder shall be separated from the wall by at least \_\_\_\_\_.**

- a. 3 inches
- b. 5 inches
- c. 7 inches
- d. 9 inches

**75. Minimum tread requirements shall be specified in Table 321.042. Treads less than 9 inches in width shall have open risers. All treads shall be \_\_\_\_\_ in dimension.**

- a. varying
- b. uniform
- c. incompatible
- d. inconsistent

**76. Rungs may only be used for ladders with a pitch range of 75degree to 90 degrees. Rungs shall be at least \_\_\_\_\_ in diameter for metal ladders and 1.5 inches for wood ladders. All rungs shall be uniform in dimension.**

- a. 1 inch
- b. 1.5 inches
- c. 2 inches
- d. 2.5 inches

**77. Handrails shall be designed and constructed to withstand a \_\_\_\_\_ load applied in any direction.**

- a. 150 pound
- b. 175 pound
- c. 200 pound
- d. 250 pound

**78. 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

**79. Handrails shall be required for ladders with pitches less than \_\_\_\_\_.**

- a. 45 degrees
- b. 55 degrees
- c. 65 degrees
- d. 75 degrees

**80. Handrails shall be located so the top of the handrail is at least 30 inches, but not more than \_\_\_\_\_, above the nosing of the treads.**

- a. 34 inches
- b. 38 inches
- c. 42 inches
- d. 48 inches

**81. 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

Questions 82 to 86  
(Refer to Review Materials - SPS 321 .045 Ramps)

**82. Ramps shall not have a gradient greater than 1 in 8 or one foot of rise in 8 feet of run. Walkways with gradients less than 1 in 20 or one foot of rise in 20 feet of run are \_\_\_\_\_ to be ramps.**

- a. not considered
- b. considered
- c. thought
- d. treated

**83. 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

**84. Ramps shall have a slip resistant surface and shall have a \_\_\_\_\_ measured between handrails.**

- a. maximum width of 36 inches
- b. minimum width of 36 inches
- c. maximum width of 40 inches
- d. minimum width of 40 inches

**85. Handrails shall be provided on all sides of ramps. Every ramp that overcomes a change in elevation of more than 6 inches shall be provided with at least one handrail.**

- a. True
- b. False

**86. Open-sided ramps shall have the area below the handrail protected by intermediate rails or an ornamental pattern to prevent the passage of a sphere with a diameter of \_\_\_\_\_ when applying a force of 4 pounds, except as provided in subd. 2.**

- a. 4 3/8 inches
- b. 4 6/8 inches
- c. 7 2/3 inches
- d. 8 3/8 inches

Questions 87 to 92 (Refer to Review Materials SPS 321.05  
Natural Light and Natural Ventilation)

**87. All exhaust ventilation shall terminate outside the building.**

- a. True
- b. False

**88. Natural ventilation shall be provided to each habitable room by means of openable doors, skylights or windows. The net area of the openable doors, skylights or windows shall be \_\_\_\_\_ of the net floor area of the room, except as provided in subd. 2.**

- a. at least 3.5%
- b. at least 4.5 %
- c. no more than 3.5%
- d. no more than 4.5%

**89. (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.

**90. 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

**91. Each habitable room shall be provided with natural light by means of glazed openings. The area of the glazed openings shall be \_\_\_\_\_ of the net floor area, except under the following circumstances:**

- (a) Exception. Habitable rooms, other than bedrooms, located in basements, ground floors or above garages do not require natural light.**
- (b) Exception. Natural light may be obtained from adjoining areas through glazed openings, louvers or other approved methods. Door openings into adjoining areas may not be used to satisfy this requirement.**

- a. not more than 6%
- b. at least 6%
- c. at least 8%
- d. not more than 8%

**92. (a) Natural Ventilation. Balanced mechanical ventilation may be provided in lieu of openable exterior doors, skylights or windows provided the system is capable of providing \_\_\_\_\_ per hour of fresh outside air while the room is occupied. Infiltration may not be considered as make-up air for balancing purposes.**

- a. at least one air change
- b. at least two air changes
- c. not more than one air change
- d. not more than two air changes

Questions 93 to 106 (Refer to Review Materials SPS 321.06  
Ceiling Height; SPS 321.07 Attic and Crawl Space Access; SPS  
321.08 Fire Separation and Dwelling Unit Separation)

**93. CEILING HEIGHT. All habitable rooms, kitchens, hallways, bathrooms and corridors shall have a ceiling height of at least \_\_\_\_\_.**

- a. 6 feet
- b. 7 feet
- c. 8 feet
- d. 9 feet

**94. 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%

**95. CRAWL SPACES.** Crawl spaces with \_\_\_\_\_ of clearance or more between the crawl space floor and the underside of the house floor joist framing shall be provided with an access opening of at least 14 by 24 inches.

- a. 12 inches
- b. 16 inches
- c. 18 inches
- d. 24 inches

**96. 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

**97. FIRE SEPARATION.** Attached garages. \_\_\_\_\_ separations between an attached garage and a dwelling shall extend from the top of a concrete or masonry foundation to the underside of the roof sheathing or fire-resistive ceiling construction.

- a. Level
- b. Vertical
- c. Horizontal
- d. Parallel

**98. FIRE SEPARATION.** Dwelling units shall be separated from garage spaces, accessory buildings, property lines and other dwelling units in accordance with Table 321.08 and the following requirements:

**TABLE 321.08**

<b>Between Dwelling And:</b>	<b>Distance Between Objects<sup>1</sup></b>	<b>Fire Rated Construction<sup>2,5</sup></b>
Detached garage or accessory building on same property	Less than 5 feet	3/4 - hour wall <sup>3</sup> 1/3 hour door or window <sup>3</sup>
Another dwelling on same property	Less than 5 feet	3/4 - hour wall <sup>4</sup> 1/3 hour door or window <sup>4</sup>
Detached garage, accessory building or other dwelling on same property	5 to 10 feet	3/4 - hour wall <sup>3</sup> 1/3 hour door or window <sup>3</sup>
Detached garage, accessory building, or other dwelling on same property	More than 10 feet	No requirements
Property Lines	Less than 3 feet	3/4 -hour wall 1/3- hour door or window
Property Lines	3 feet or more	No requirements
Zero Lot Line	None	Follow sub. (2)(d) requirements

**1**Distance shall be measured perpendicular from wall to wall or property line, ignoring overhangs.

**2** Fire rated construction shall protect the dwelling from an exterior fire source.

**3** Fire rated construction may be in either facing wall.

**4** Fire rated construction shall be in both facing walls.

**5** The methods for garage separation in par. (a) 1. are examples of 3/4 hour wall construction.

- a. True
- b. False

**99. FIRE SEPARATION.** Attached garages. 1. The walls and ceiling between an attached garage and any portion of the dwelling, including attic or soffit areas, shall be 3/4-hour fire-resistive construction or shall be constructed as specified in any of the following:

- a. One layer of 5/8-inch Type X gypsum drywall \_\_\_\_\_ be used on the garage side of the separation wall or ceiling.
- b. One layer of 1/2-inch gypsum drywall \_\_\_\_\_ be used on each side of the separation wall or ceiling.
- c. Two layers of 1/2-inch gypsum drywall \_\_\_\_\_ be used on the garage side of the separation wall or ceiling.

- a. must/ can/ shall
- b. can/ should/ shall
- c. should/ shall/ must
- d. shall/ shall/ shall

**100. 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

**101. FIRE SEPARATION. Attached garages.** 2. For all methods listed under subd. 1., drywall joints shall comply with one of the following:

- a. Joints shall be taped or sealed.
- b. Joints shall be fitted so that the gap is no more than 1/20-inch with joints backed by either solid wood or another layer of drywall such that the joints are staggered.

**Note:** 1/20-inch is approximately the thickness of a U.S. dime.

- a. True
- b. False

**102. 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

**103. 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

**104. DWELLING UNIT SEPARATION. (c) Doors.** Any door installed in the dwelling unit separation shall have the door and frame assembly labeled by an independent testing agency as having a minimum fire resistive rating of \_\_\_\_\_. The test to determine the \_\_\_\_\_ rating is not required to include the hose stream portion of the test.

- a. 20 minutes / 20 minute
- b. 30 minutes / 25 minute
- c. 25 minutes / 30 minute
- d. 30 minutes / 30 minute

**105. DWELLING UNIT SEPARATION. Walls.** Walls in the dwelling unit separation shall be protected by not less than one layer of 5/8-inch Type X gypsum wallboard or 2 layers of 1/2-inch gypsum wallboard or equivalent on each side of the wall with joints in compliance with sub. (1)(a)2.

- a. True
- b. False

**106. 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

Questions 107 to 113 (Refer to Review Materials SPS 321.085 Fireblocking; SPS 321.09 Smoke Detectors and SPS 321.095 Automatic Fire Sprinklers)

**107. FIREBLOCKING LOCATIONS.** Fireblocking shall be provided in all of the following locations:

- (a) In concealed spaces of walls and partitions, including furred spaces, at the ceiling and floor levels.
- (b) At all interconnections between concealed vertical and horizontal spaces including the attachment between a carport and a dwelling.
- (c) In concealed spaces between stair stringers at the top and bottom of the run and at any intervening floor level.
- (d) At all openings around wires, cables, vents, pipes, ducts, chimneys and fireplaces at ceiling and floor level.

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

**108. 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

**109. 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)

**110. 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

**111. 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

**112. SMOKE DETECTORS. (5) For envelope dwellings, at least \_\_\_\_\_ smoke alarms shall be placed in the air passageways. The alarms shall be placed as far apart as possible.**

- a. one
- b. two
- c. three
- d. four

**113. SMOKE DETECTORS. (4) Smoke alarms and detectors shall be maintained in accordance with \_\_\_\_\_.**

- a. the manufacturer's specifications
- b. Municipal ordinances
- c. County ordinances
- d. Federal ordinances

Questions 114 to 121 (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)

**114. FOAM PLASTIC. (c) The following applications of foam plastic do not require a thermal barrier: \_\_\_\_\_**

**1. On overhead garage doors.**  
**2. In the box sill of the basement or ground floor, above the bottom of the floor joists.**

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

**115. 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

**116. 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

**117. 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

**118. 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

**119. CARBON MONOXIDE ALARMS (2) NEW CONSTRUCTION. (a)**  
General. Except as provided in sub. (4), listed and labeled carbon monoxide alarms can be installed and maintained in accordance with s. 101.647 (2) to (6), Stats., in one and 2-family dwellings, for which building permit applications were made or construction commenced on or before February 1, 2019.

- a. True
- b. False

**120. CARBON MONOXIDE ALARMS Electrical service and interconnection.** 1. Except as provided in subd. 2., carbon monoxide alarms \_\_\_\_\_ continuously powered by the house electrical service, \_\_\_\_\_ a backup power supply and shall be interconnected so that activation of one alarm will cause activation of all alarms.

- a. can be/ can have
- b. shall be/ shall have
- c. may be / may have
- d. shall be / can have

**121. PROTECTION AGAINST DECAY AND TERMITES. (4) All**  
pressure-treated wood and plywood shall be identified by a quality mark or certificate of inspection of an approved inspection agency which maintains continued supervision, testing and inspection over the quality of the product.

**Note:** Heartwood of redwood, cypress, black walnut, catalpa, chestnut, sage orange, red mulberry, white oak, or cedar lumber are considered by the department to be naturally decay-resistant. \_\_\_\_\_ are considered by the department to be naturally termite resistant.

- a. Heartwood of bald cypress and redwood
- b. Redwood and eastern red cedar
- c. Heartwood of bald cypress, redwood and eastern red cedar
- d. None of the above

Questions 122 to 136 (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)

**122. EXCAVATIONS ADJACENT TO ADJOINING PROPERTY. (1)**  
**Notice.** The 15-day time limit for written notification may be waived if such waiver is signed by the owner(s) or tenant(s) of the adjoining properties.

- a. True
- b. False

**123. EXCAVATIONS ADJACENT TO ADJOINING PROPERTY. (a)**  
Excavations less than \_\_\_\_\_ in depth. If the excavation is made to a depth of \_\_\_\_\_ or less below grade, the person making or causing the excavation shall not be responsible for any necessary underpinning or extension of the foundations of any adjoining buildings.

- a. 12 feet
- b. 10 feet
- c. 16 feet
- d. 14 feet

**124. EXCAVATIONS ADJACENT TO ADJOINING PROPERTY. (1)**

**Notice.** Any person making or causing an excavation which may affect the lateral soil support of adjoining property or buildings shall provide at least \_\_\_\_\_ written notice to all owners of adjoining buildings of the intention to excavate. The notice shall state that adjoining buildings may require permanent protection.

- a. 10 days
- b. 15 days
- c. 20 days
- d. 30 days

**125. 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

**126. 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

**127. DRAINAGE. (1) Grade.** The finished grade of the soil shall slope away from the dwelling at a rate of at least  $\frac{1}{2}$  inch per foot for at least \_\_\_\_\_, except as provided in subs. (2) and (3).

- a. 5 feet
- b. 10 feet
- c. 20 feet
- d. 30 feet

**128. EROSION CONTROL AND SEDIMENT CONTROL. Monitoring.**

The owner or owner's agent shall check the erosion and sediment control practices for maintenance needs which of the following intervals until the site is stabilized:

- 1. At least weekly.
- 2. Within 24 hours after a rainfall event of 0.5 inches or greater. A rainfall event shall be considered to be the total amount of rainfall recorded in any continuous 24-hour period.
- 3. At all intervals cited on the erosion and sediment control plan.

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

**129. 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

**130. EROSION CONTROL AND SEDIMENT CONTROL. Soil loss**

**analysis.** Potential soil loss shall be determined using an engineer analytical modeling acceptable to the department. Note: The Revised Universal Soil Loss Equation II is an example of an acceptable model to determine soil loss.

- a. True
- b. False

**131. EROSION CONTROL AND SEDIMENT CONTROL. Monitoring.**

The owner or owner's agent shall maintain a monitoring record when the land disturbing construction activity involves one or more acres.

- a. True
- b. False

**132. EROSION CONTROL AND SEDIMENT CONTROL. Maintenance.**

When the failure of erosion or sediment control practices results in an immediate threat of sediment entering public sewers or the waters of the state, procedures might be implemented immediately to repair or replace the practices.

Note: See ch. SPS 325 Appendix A for further explanatory material.

- a. True
- b. False

**133. 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

**134. 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

**135. EROSION CONTROL AND SEDIMENT CONTROL. Mandated Practices.** Specific practices at each site where land disturbing construction activity is to occur shall be utilized to prevent or reduce \_\_\_\_\_:

- (a) The deposition of soil from being tracked onto streets by vehicles.
- (b) The discharge of sediment from disturbed areas into on-site storm water inlets.
- (c) The discharge of sediment from disturbed areas into abutting waters of the state.
- (d) The discharge of sediment from drainage ways that flow off the site.
- (e) The discharge of sediment by dewatering activities.
- (f) The discharge of sediment eroding from soil stockpiles existing for more than 7 days.

  

- a. one of the following
- b. all of the following
- c. none of the following

**136. EROSION CONTROL AND SEDIMENT CONTROL. Control Standards.** Including the practices under sub. (2), additional erosion and sediment control practices shall be employed, as necessary, to accomplish one of the following:

- (a) A potential annual cumulative soil loss rate of not more than one of the following:

- 1. Five tons per acre per year where sand, loamy sand, sandy loam, loam, sandy clay loam, clay loam, sandy clay, silty clay or clay textures are exposed.

- 2. Seven and a half tons per acre per [year] where silt, silty clay loam or silt loam textures are exposed.

- (c) A reduction of at least \_\_\_\_\_ of the potential sediment load in storm water runoff from the site on an average annual basis as compared with no sediment or erosion controls for the site where less than one acre of land disturbing construction activity is to occur.

**Note:** See ch. SPS 325 Appendix A for further explanatory material regarding compliance solutions for 80 and 40% reductions.

- a. 25%
- b. 30%
- c. 35%
- d. 40%

Questions 137 to 144 (Refer to Review Materials SPS 321.15 Footings; SPS 321.16 Frost Protection; SPS 321.17 Drain Tiles)

**137. 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 degree angle for the full depth of the footing.

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

**138. 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

**139. FOOTINGS. General.** (a) The dwelling and attached structures, such as decks and garages, shall be supported on a structural system designed to transmit and safely distribute the loads to the soil.

(b) The loads for determining the footing size shall include the weight of the live load, roof, walls, floors, pier or column, plus the weight of the structural system and the soil over the footing.

(c) Footings shall be sized to not exceed the allowable material stresses.

(d) The bearing area shall be at least equal to the area required to transfer the loads to the supporting soil without exceeding the bearing capacity of the soil.

(e) 1. Structures supported on floating slabs or similar shallow foundations may not be physically attached to structures that are supported by footings that extend below the frost line unless an isolation joint is used between the structures, except as provided in subd. 2. This isolation shall extend for the full height of the structure.

- a. True
- b. False

**140. 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

**141. FOOTINGS. Soil–Bearing Capacity.** No footing or foundation shall be placed on soil with a bearing capacity of less than 1,500 pounds per square foot unless the footing or foundation has been designed through structural analysis. The soil–bearing values of common soils may be determined through soil identification.

- a. True
- b. False

**142. 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

**143. 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

**144. 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

Questions 145 to 151 (Refer to Review Materials SPS 321.18 Foundations)

**145. GENERAL.** Anchor bolts. Structural steel anchor bolts, at least  $\frac{1}{2}$  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

**146. 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

**147. GENERAL.** Floor Framing. 1. Floor framing shall be fastened to the sill plate by \_\_\_\_\_ of the following methods:  
a. Mechanical fasteners used in accordance with the manufacturer's testing and listing.  
b. In accordance with structural analysis.  
c. In accordance with the fastener table printed in ch. SPS 325 Appendix A.

**Note:** Per s. SPS 321.22 (1), sill plates are not required on foundation walls of poured concrete or on masonry walls with

mortar- or grout-filled cores or on masonry walls with a solid block top course.

- a. one
- b. all
- c. none

**148. 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

**149. 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

**150. 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)

**151. 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

Questions 152 to 167 (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)

**152. 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

**153. 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)

**154. 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

**155. 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

**156. 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

**157. 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

**158. WOOD FRAME FLOORS. Floor Trusses. Metal plate connected wood floor trusses shall be designed in accordance with the Design Specifications for Metal Plate Connected Parallel Chord Wood Trusses and the National Design Specification for Wood Construction. Truss members shall not be\_\_\_\_\_.**

- a. cut
- b. notched
- c. bored
- d. All of the above

**159. 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

**160. 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 1/2 inches
- b. 2 inches
- c. 2 1/2 inches
- d. 3 inches

**161. 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

**162. 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.

**163. 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

**164. 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. 1/4 the depth of the joist
- b. 1/3 the depth of the joist
- c. 1/2 the depth of the joist
- d. 2/3 the depth of the joist

**165. WOOD FRAME FLOORS. Overhanging of Floors. Joist overhangs parallel to the main floor framing system. Joist overhangs that are extensions of, and parallel to, the main floor framing system may extend beyond the depth of the joist without structural analysis provided they meet \_\_\_\_\_ of the following conditions:**

- 1. The overhang is cantilevered no more than 2 feet beyond the outer edge of the supporting wall below it.**
- 2. a. The overhang supports a uniform load limited to the weight of the bearing wall and the tributary roof area above it.**
- b. The tributary length of the roof area, excluding the eave overhang, is no more than 2 feet greater than the actual length of the joist directly below.**
- c. The eave overhang is no more than 2 feet.**
- 3. The joist overhang does not support any concentrated loads. For the purposes of this subsection, a framed opening in the wall with a rough opening of 4 feet or less shall be considered uniform loading.**
- 4. a. The cantilevered joist is doubled at the supporting wall.**

b. The doubled joist length extends inward beyond the inner edge of the supporting wall by the same distance as the cantilever.

c. The added joist member is secured to the main joist as stated in the nailing schedule in ch. SPS 325 Appendix A, under the heading for "floor framing, built-up girder and beams, top loaded".

- a. all
- b. one
- c. two
- d. three

**166. 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

**167. (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 168 to 213 (Refer to Review Materials SPS 321.23  
Wall Design; SPS 321.24 Exterior covering; SPS 321.25  
Wood Frame Walls)

**168. WALL DESIGN.** Walls shall be designed to withstand a horizontal wind pressure of at least 20 pounds per square foot applied to the vertical projection of that portion of the dwelling above grade. \_\_\_\_\_ wind load reduction shall be permitted for the shielding effect of other buildings.

- a. No
- b. A
- c. A 10%
- d. None of the above

**169. 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

**170. EXTERIOR COVERING. Flashing.** Corrosion-resistant flashing may be installed in the interior walls to prevent water from entering the wall cavity or coming in contact with the structural framing components.

- a. True
- b. False

**171. 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

**172. 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

**173. 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

**174. 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

**175. 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

**176. 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

**177. 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

**178. WOOD FRAME WALLS. (4) NOTCHING.** Notching and boring of columns or posts is prohibited unless designed through structural analysis. Studs shall be cut or bored at least 1/2 the depth of the stud, unless the stud is reinforced.

- a. True
- b. False

**179. WOOD FRAME WALLS. Exceptions.** 1. A single top plate may be used in place of a double top plate provided a rafter is located directly over the studs and the plate is securely tied at the end joints, corners and intersecting walls. Joints may occur in single top plates only when directly over a stud.  
2. A continuous header, consisting of two 2-inch members set on edge, may be used in lieu of a double plate if tied to the adjacent wall.

- a. True
- b. False

**180. WOOD FRAME WALLS. Stud Configuration.** Wood studs shall comply with the size and spacing requirements indicated in Table 321.25–A. Studs in the exterior walls shall be placed with the wide faces perpendicular to the plane of the wall.

Note: See ch. SPS 325 Appendix A for acceptable nailing schedule.

Note: See s. SPS 321.10 for requirements on treating wood for decay and termite resistance.

- a. True
- b. False

**181. WOOD FRAME WALLS. (5) PARTITIONS.** Load-bearing partitions shall be placed over beams, girders, or other load-bearing partitions. Load-bearing partitions running at \_\_\_\_\_ angles to the joists shall not be offset from the main girder or walls more than the depth of the joist unless the joists are designed to carry the load.

- a. right
- b. left
- c. any

**182. 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

**183. WOOD FRAME WALLS. (3) WALL OPENINGS. (cm) Header support.** Headers in bearing walls shall be supported in accordance with subd. 1. or 2. or 3.

1. Headers \_\_\_\_\_ or less in length shall be directly supported on each end by either:

- a. The single common stud and a shoulder stud; or
- b. The single common stud with a framing anchor attached.
- 2. Headers greater than \_\_\_\_\_ but less than or equal to 6 feet in length shall be directly supported on each end by the single common stud and a shoulder stud.
- 3. Headers greater than 6 feet in length shall be directly supported on each end by the single common stud and 2 shoulder studs.

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

**184. 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

**185. 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)

**186. 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

**187. WOOD FRAME WALLS. Bracing Materials and Methods.**

Wall bracing may consist of the materials and methods listed in Table 321.25-G or approved alternatives capable of providing the required dead load resistance as determined in accordance with s. SPS 321.02 (1)(c).

- a. True
- b. False

Refer to Table 321-25-A Size, Height and Spacing of Wood Studs-A (for questions 188 through 194)

**188. 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"

**189. 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"

**190. Using a Nominal Size 2X4, what is the maximum spacing allowed when supporting two floors, roof and ceiling?**

- a. 14"
- b. 24"
- c. 16"
- d. None of the above, it is not allowed

**191. 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"

**192. 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"

**193. Using a Nominal Size 2X5, what is the maximum spacing allowed when supporting one floor, roof and ceiling?**

- a. 14"
- b. 16"
- c. 24"
- d. 10"

**194. What is the maximum Laterally Unsupported Stud Height in feet for a bearing exterior wall for a nominal sized 2X4?**

- a. 14'
- b. 24'
- c. 16'
- d. 10'

**195. WOOD FRAME WALLS. Braced wall panel support. Braced wall panels shall be supported on floor framing or foundations as follows:**

**1. Where joists are perpendicular to braced wall lines above or below, blocking shall be provided between the joists at braced wall panel locations to permit fastening of wall plates in accordance with the fastener table in the ch. SPS 325 Appendix A.**

**2. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening of wall plates in accordance with the fastener table in the ch. SPS 325 Appendix A.**

**3. Braced wall panels shall be permitted to be supported on cantilevered floor joists meeting the cantilever limits of s. SPS 321.22 (6) provided joists are blocked at the nearest bearing wall location, except such blocking is not required for cantilevers not exceeding 24 inches where a full height rim joist is provided.**

- a. True
- b. False

Refer to Table 321.25-B Allowable Spans for Headers Supporting Roof/Ceiling Assemblies (for questions 196 through 201)

**196. 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'

**197. 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'

**198. 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'

**199. 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'

**200. What is the maximum width allowed for header members on a house 24' in width; using two 2X12's; in zone 2? (Refer to SPS 321.02 for the counties in each zone)**

- a. 5'
- b. 6'
- c. 7'
- d. 9'

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

- a. 5'
- b. 6'
- c. 7'
- d. 9'

Refer to Table 321.25-D Allowable Spans for Headers Supporting One Floor and Roof/Ceiling Assembly (for questions 202 through 207)

**202. 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'

**203. 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'

**204. 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'

**205. 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'

**206. What is the maximum width allowed for header members on a house 28' 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'

**207. What is the maximum width allowed for header members on a house 30' in width; using two 2X12s; in zone 2? (Refer to SPS 321.02 for the counties in each zone)**

- a. 2.5'
- b. 3'
- c. 4'
- d. 5'

**208. 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

**209. 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

**210. 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

**211. Refer to Table 321.25-G Bracing Methods**

**Diagonal wood boards (3/4" for a maximum of 24" O.C. stud spacing) may be used for a nominal wall height of 12'.**

- a. True
- b. False

**212. 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

**213. 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 all of the following requirements:**

**3. Where used, the number of intermittent brace panels applied to walls parallel to each rectangle side shall comply with Table 321.25-I.**

**4. Where used, the total length of continuous sheathed brace panels applied to walls parallel to each building side shall comply with Table 321.25-J.**

**5. The location of brace panels applied to walls parallel to each building side shall comply with Figure 321.25-C.**

- a. True
- b. False

Questions 214 to 222 (Refer to Review Document SPS 321.26 Masonry Walls)

**214. 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

**215. MASONRY WALLS. Masonry Units. (a) Unused concrete units. Previously unused concrete masonry units shall conform to the ASTM C 90 standard.**

**(b) Unused clay or shale units. Previously unused clay or shale masonry units shall conform to the appropriate ASTM standard: C 62; C 216; or C 652. Units which will be exposed to weathering or frost action shall be Grade SW as specified in these standards.**

**(c) Used masonry units. All previously used masonry units shall be free from physical defects which interfere with the installation or impair the structural properties of the unit.**

- a. True
- b. False

**216. MASONRY WALLS. Cavity Wall. (a) Corbels. Corbels shall be constructed in accordance with ACI 530.**

**(b) Projections. The projection of a wall beyond the edge of a supporting member other than masonry, such as a shelf angle or edge of a beam, shall not exceed \_\_\_\_\_, unless at least 2/3 the mass of the wythe of masonry involved is located directly over the load-carrying member.**

- a. 1 inch
- b. 1 1/4 inches
- c. 1 1/2 inches
- d. 1 3/4 inches

**217. 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

**218. MASONRY WALLS. Openings and Lintels. (a) Openings. The masonry above openings shall be supported. The bearing length of structural elements which support the masonry above the opening shall be not less than \_\_\_\_\_.**

- a. 4 inches
- b. 5 inches
- c. 6 inches
- d. None of the above

**219. MASONRY WALLS. Mortar Components.** Mortar components shall comply with the following requirements:

**(b) Admixtures or mortar colors.** Admixtures or mortar colors shall not be added to the mortar unless the resulting mortar conforms to the mortar specifications. Only mineral oxide may be used as mortar color and shall not exceed \_\_\_\_\_ by weight of the cement.

- a. 5 %
- b. 8%
- c. 10%
- d. 12%

**220. MASONRY WALLS. Mortar Components. Mixing.** Mortar shall be mixed for at least 5 minutes after all ingredients have been added with the maximum amount of water to produce a workable consistency. Mortars that have stiffened due to water evaporation shall be retempered by adding water as frequently as needed to restore the required consistency. Mortars shall be used and placed in final position within 1 hour after mixing.

- a. True
- b. False

**221. 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

**222. 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

Questions 223 to 240 (Refer to Review Materials 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)

**223. 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

**224. 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

**225. ROOF DESIGN AND FRAMING. Notching and Boring.** (b)

**Notches located in the top or bottom of ceiling joists and rafters are prohibited from all of the following:**

- 1. Having a depth exceeding 1/6 the depth of the member.
- 2. Having a length exceeding 1/3 the depth of the member.
- 3. Being located in the middle 1/3 of the span of the member.

- a. #1 and 3
- b. #1, 2 and 3
- c. #2 and 3
- d. none of the above

**226. WEATHER PROTECTION FOR ROOFS. Ice Dam protection.** Shingled or shake roofs that extend over a heated area of a dwelling or attached garage and that have a slope of \_\_\_\_\_ shall be provided with ice dam protection in the form of sheet metal or a product labeled as meeting the requirements of ASTM D 1970.

- a. 4:12 or less
- b. 4:12 or more
- c. 5:12 or less
- d. 5:12 or more

**227. 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

**228. 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

**229. 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

**230. 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

**231. 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

**232. 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

**233. 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. # 1 and 2
- c. # 1, 2 and 3
- d. #2 and 3

**234. 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.

**235. INSTALLATION OF MANUFACTURED HOMES. INSTALLATION STANDARDS. Compliance.** A manufactured home produced on or after April 1, 2007 shall be installed in accordance with 24 CFR Part 3285 except as otherwise provided by this subsection.

- a. True
- b. False

**236. 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

**237. 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

**238. 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

**239. 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

**240. 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

