UDC Commentary 21 Code Refresher Quiz Part 2

Instructions

1. Print these pages. **Fee $30**
2. Answer the **Simple questions** that follow mini sections of the code language.
3. Circle the correct answers and transfer the answers to the answer sheets (see last 3 pages).
4. After answering the simple questions you will become familiar with the new code changes.
5. Page down to the last page for the verification form, answer sheets and mailing instructions.

3 hour course for:

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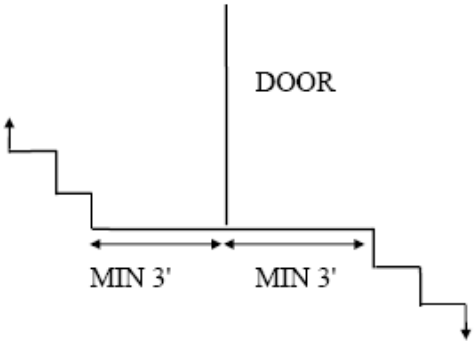
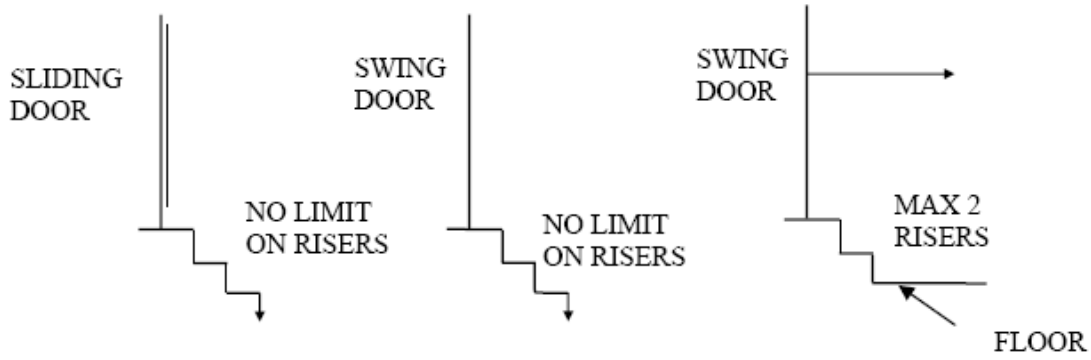
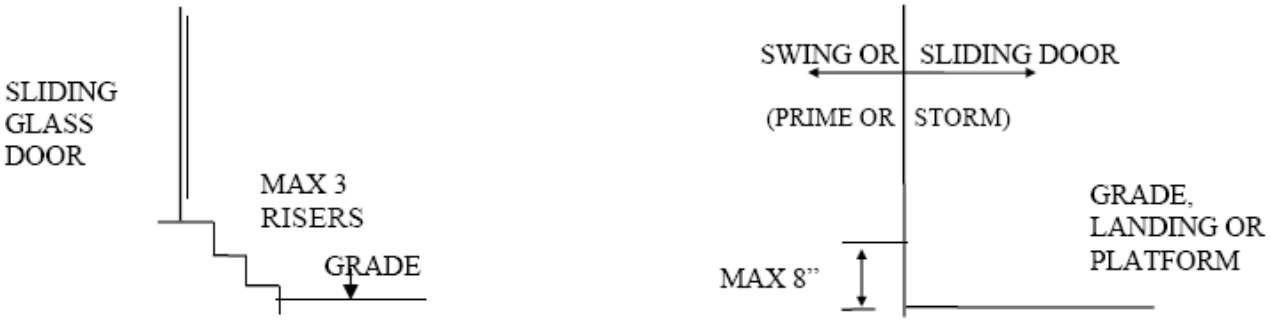


Exceptions

Interior Stairs (Garages and protected porches are interior spaces):



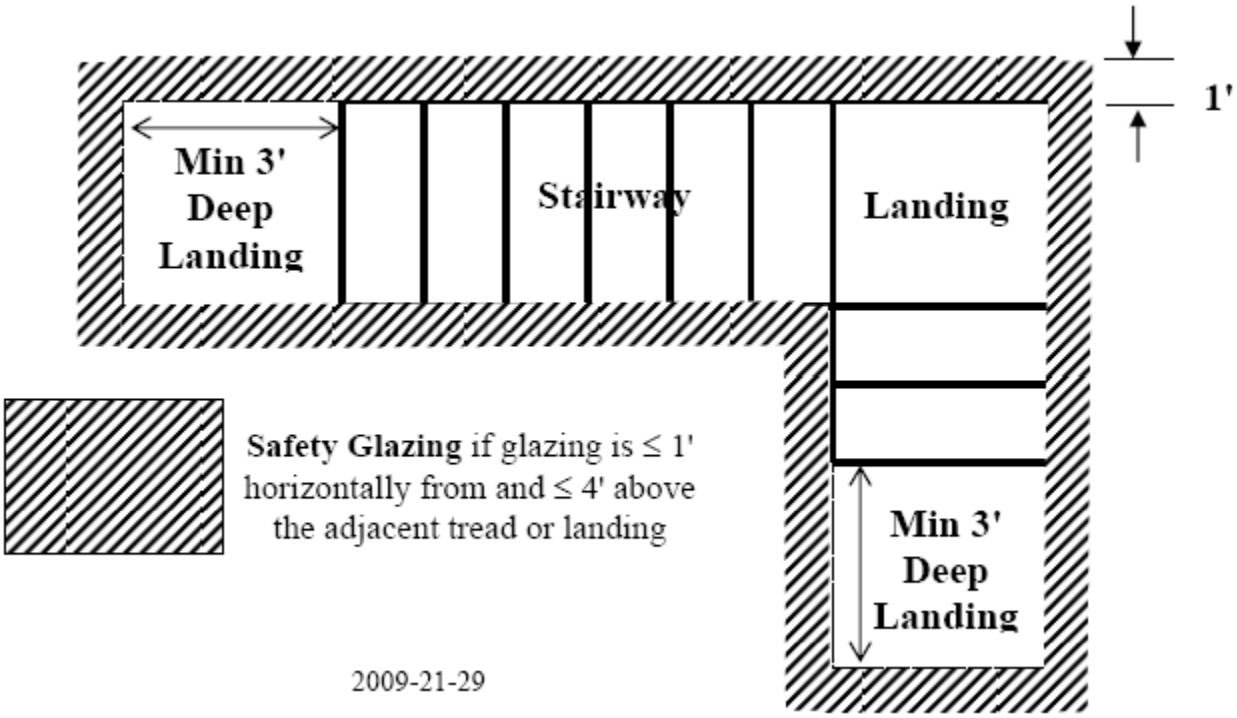
Exterior Stairs



1. Protected porches are considered _____ spaces.
    a. exterior
    b. interior
    c. neither a or b
    d. both a or b
2. Interior doors swinging over interior steps are allowed how many risers by code?
    a. 1
    b. 2
    c. unlimited
    d. none
3. Sliding glass doors leading to the exterior are allowed how many risers by code?
    a. 1
    b. 2
    c. unlimited
    d. 3
4. Interior doors swinging inward or not over the interior steps are allowed how many risers by code?
    a. 1
    b. 2
    c. unlimited
    d. none
5. Interior sliding doors leading to interior steps are allowed how many risers by code?
    a. 1
    b. 2
    c. unlimited
    d. none

21.042(2) Ladder Treads
Ladder treads are measured the same as stairway treads - horizontally from nosing to nosing.
21.042(6) (b) Top Ladder Tread. This section is requiring that the top tread's (first tread below the floor level) back edge be at least 7 inches from the wall in front of it. This ensures adequate toeroom and still allows a full depth tread.

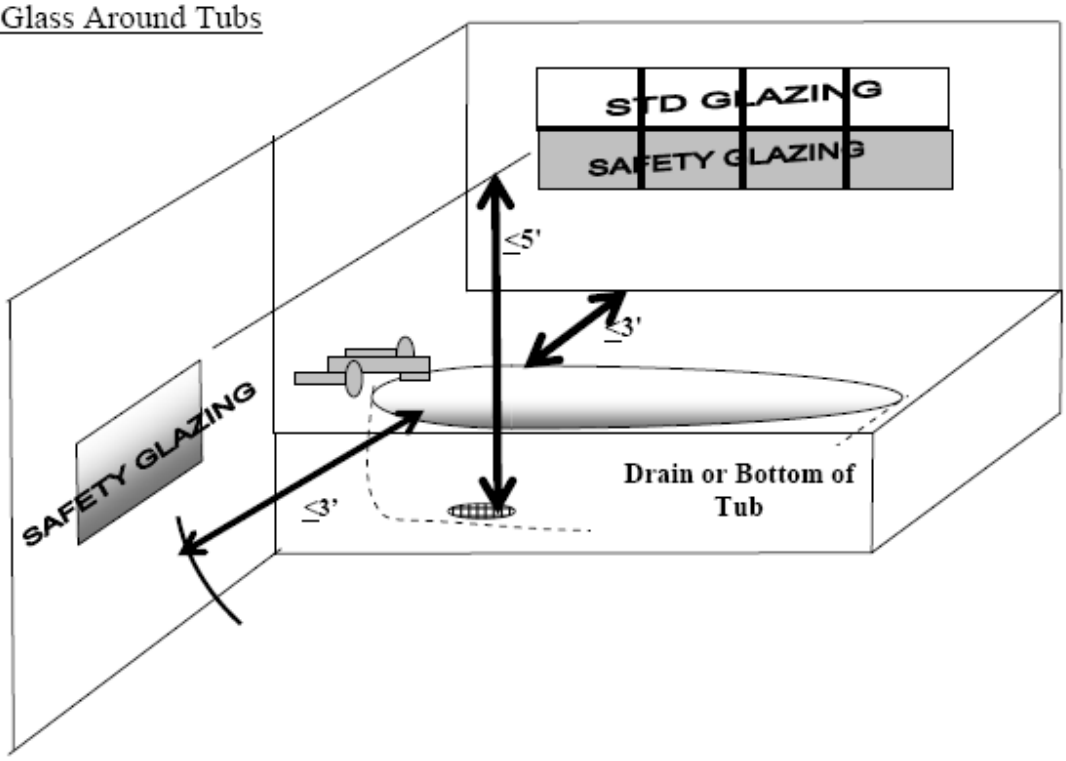
6. This section is requiring that the top tread's (first tread below the floor level) back edge be at least ___ inches from the wall in front of it.
    a. 6
    b. 7
    c. 8
    d. 9
7. This ensures adequate _____ and still allows a full depth tread.
    a. headroom
    b. toeroom
    c. both a or b
    d. none of the above



8. **Safety Glazing** if glazing is less than or equal to __' horizontally from and less than or equal to __' above the adjacent tread or landing.

a. 2, 4
b. 1, 4
c. 4, 4
d. none of the above

21.05(3)(b) Safety Glass Around Tubs



9. Safety glazing is required in any wall where the glazing is within ___ feet vertically of the lowest drain inlet.
   a. 3
   b. 4
   c. 5
   d. 2
10. Safety glazing is required within ___ feet horizontally of the nearest part of the inner rim of a bathtub, hot tub, shower, spa or whirlpool appliance.
   a. 3
   b. 4
   c. 5
   d. 2

21.06 Ceiling Height

Question: Does a basement have to comply with the 7-foot minimum ceiling height requirement?
Answer: It only does in those 'habitable' areas of the basement that contain rooms used for sleeping, living, dining, kitchens, hallways, bathrooms and corridors. From a practical standpoint, most basements will contain some of these uses initially or after the basement is finished-off in the future. Some foresight by the builder or owner is advisable, since changing ceiling height is not a practical building alteration.
Question: May a ceiling fan or light fixture encroach on the required ceiling height?
Answer: A ceiling fan or light fixture may encroach similar to a beam or ductwork - no more than 8 inches below the required ceiling height; therefore, 6'-4" minimum clearance maintained between fan or other obstruction and the floor.

21.07 Attic and Crawl Space Access

Question: Can access be provided from outside the building, such as an outside vent or scuttle?
Answer: Yes, however, any area of 150 square feet or more must still comply with the minimum opening size of 14" x 24". This means if you have a home with more than one attic space separated by a cathedral ceiling, two openings would be needed.
Question: Do crawlspaces built with less than 18 inches of clearance or over concrete slabs need access?
Answer: No access required; however, if area is outside the dwelling thermal envelope, venting is required.

11. A ceiling fan or light fixture may encroach on the required ceiling height up to ___".
   a. 4
   b. 6
   c. 8
   d. none of the above
12. A finish basement ceiling height must be ____ to be considered habitable.
   a. 6' 4"
   b. 6' 8"
   c. 7'
   d. all of the above
13. Attic and Crawl Space Access openings must be _____ .
   a. 14" x 22"
   b. 14" x 24"
   c. 2' x 2'
   d. none of the above

14. Crawlspaces built with less than 18 inches of clearance over concrete slabs need access.
    a. true
    b. false

21.08(1)(d)2. Attic and Crawl Space Access
Question: What kind of hardware is necessary on an attic access door that is located in the separation between a garage and dwelling area?
Answer: The cover or door is installed so that it is permanent (non-removable) with hardware to maintain it in a closed position with latching hardware to maintain. Self-closing hardware is not required.
21.08(1)(c)(d)2. Attic and Crawl Space Access

15. Self-closing hardware is required for attic access panels in a garage separation wall.
    a. true
    b. false

Question: How do you measure the distances indicated in Table 21.08 regarding dwellings and attached/detached garages and accessory buildings?
Answer: Fire-rated construction may only be required in situations of a common house/garage wall or of adjoining house and garage walls that are less than 10 feet apart when measured perpendicularly from the house walls. Per Table 21.08, fire-rated construction would not be required if the distance between walls is 10 feet or more. The fire-rated construction is required only in those portions of either wall that does not meet the above test. In attached connecting breezeways or porches where there is no common wall but a common roof, the entire fire wall separation is required. This follows from the requirement that any fire separation shall extend from the top of the concrete or masonry foundation to the underside of the roof sheathing or ceiling.

16. Fire-rated construction may only be required in situations of a common house/garage wall or of adjoining house and garage walls that are less than ___ feet apart when measured perpendicularly from the house walls.
    a. 5
    b. 6
    c. 8
    d. 10

17. Requirements for fire separation shall extend from the top of the concrete or masonry foundation to the underside of the _____.
    a. roof sheathing
    b. ceiling
    c. truss bottom cord
    d. both a & b

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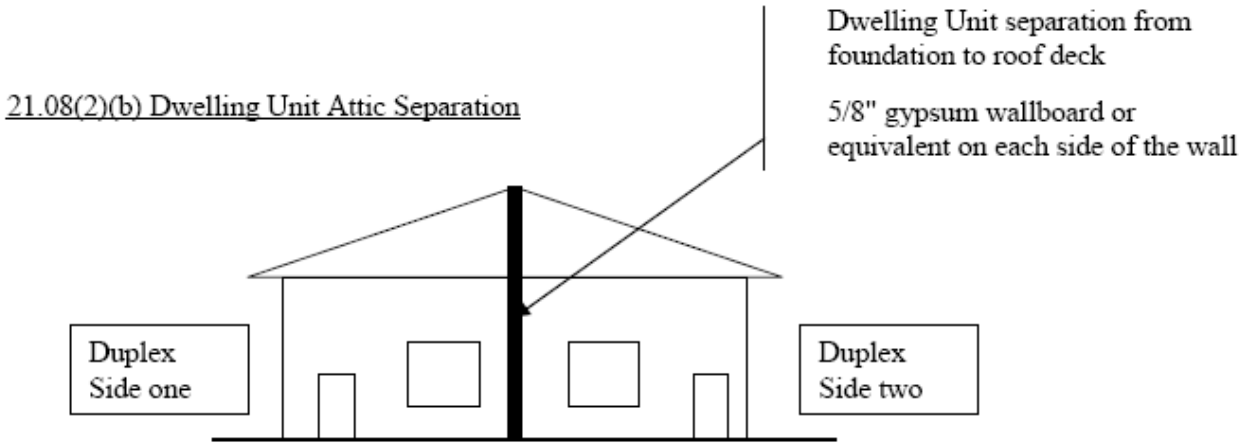
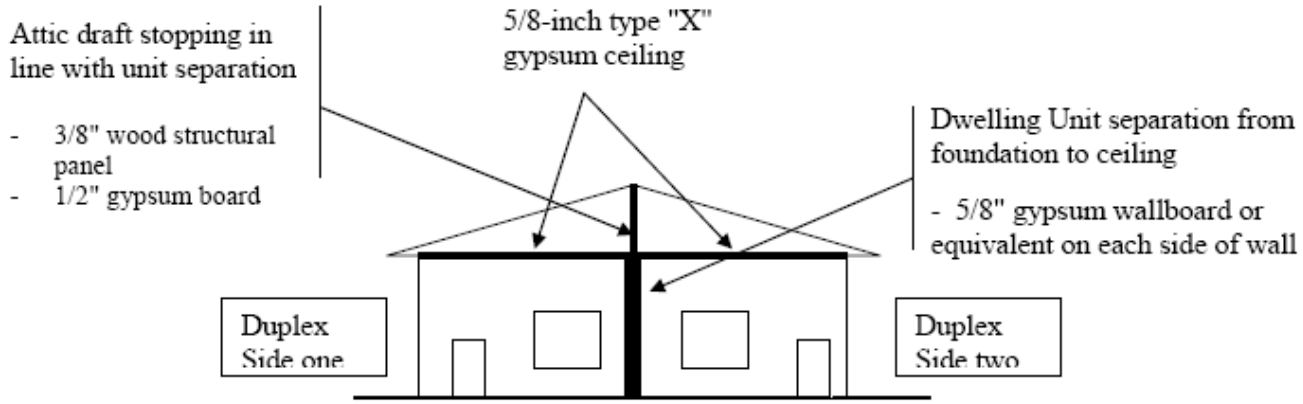
(2) DWELLING UNIT SEPARATION. (a) *General.* In 2−family dwellings, dwelling units shall be separated from each other and from shared tenant spaces including attics, basements, garages, vestibules and corridors.
(b) *Attic separation.* Dwelling units with attic space that extends over both units shall be separated in accordance with one of the following:
1. 'Complete separation.' The units shall be provided with wall construction under par. (d) that extends 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 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.
(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 20 minutes. The test to determine the 20−minute rating is not required to include the hose stream portion of the test.
(d) *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 ½ inch gypsum wallboard or equivalent on each side of the wall with joints in compliance with sub. (1) (a) 2. (e) *Floors and ceilings.* A fire protective membrane of one layer of 5/8−inch Type X gypsum wallboard with joints in compliance with sub. (1) (a) 2., shall be provided on the ceiling beneath the floor construction that provides the separation.



METHOD #1
Comm 21.08 (2) (b) 1.



METHOD #2
Comm 21.08 (2) (b) 2

18. Duplex attic draft stopping in line with unit separation would include a minimum of:
    a. 3/8” structural panels
    b. 7/16” structural panels
    c. ½” gypsum board
    d. all of the above

19. Duplex dwelling unit separation from the foundation to ceiling would include a minimum of:
    a. ½" gypsum wallboard on each side of wall
    b. 5/8" gypsum wallboard on each side of wall
    c. 3/4" gypsum wallboard on each side of wall
    d. both b & c
20. 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 __ minutes
    a. 20
    b. 30
    c. 45
    d. any of the above
21. The test to determine the 20−minute rating is required to include the hose stream portion of the test.
    a. true
    b. false
22. A fire protective membrane of one layer of ½ inch Type X gypsum wallboard with joints in compliance with sub. (1) (a) 2., shall be provided on the ceiling beneath the floor construction that provides the separation.
    a. true
    b. false

Comm 21.08 Fire separation and dwelling unit separation. (a) *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 shall be used on the garage side of the separation wall or ceiling.
b. One layer of 1/2−inch gypsum drywall shall be used on each side of the separation wall or ceiling.
c. Two layers of 1/2−inch gypsum drywall shall be used on the garage side of the separation wall or ceiling.
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.
3. Vertical 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.
(b) *Structural elements exposed in an attached garage.* Beams, columns and bearing walls which are exposed to the garage and which provide support for habitable portions of the dwelling shall be protected by one of the methods specified in par. (a) 1. a. or c. or other _ hour fire−resistive protection.
(c) *Doors.* 1. The door and frame assembly between the dwelling unit and an attached garage shall 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 not 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.
2. Only glazing allowed by the door's listing may be installed in any door required under this section.
(d) *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.
2. The cover or door of the access opening shall be permanently installed with hardware that will maintain it in the closed position when not in use.

23. The walls and ceiling between an attached garage and any portion of the dwelling, including attic or soffit areas, shall be constructed as specified in any of the following:

a. One layer of 5/8−inch Type X gypsum drywall shall be used on the garage side of the separation wall or ceiling.

b. One layer of 1/2−inch gypsum drywall shall be used on each side of the separation wall or ceiling.

c. Two layers of 1/2−inch gypsum drywall shall be used on the garage side of the separation wall or ceiling.

d. all of the above

24. 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.

c. none of the above

d. both a or b

25. Vertical separations between an attached garage and a dwelling shall extend from the top of a concrete or masonry foundation to the underside of the _____.

a. roof sheathing

b. fire−resistive ceiling construction

c. none of the above

d. both a or b

26. *Structural elements exposed in an attached garage.* Beams, columns and bearing walls which are exposed to the garage and which provide support for _____ portions of the dwelling shall be protected.

a. all

b. storage

c. habitable

d. all of the above

27. Acceptable tests for fire rating of door assemblies include _____.

a. ASTM E−152

b. UL 10B

c. NFPA 252

d. all of the above

28. *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.

c. none of the above

d. both a or b

29. The cover or door of the access opening shall be permanently installed with _____ that will maintain it in the closed position when not in use.

a. rope

b. springs

c. wires

d. hardware

TABLE 21.08

Between Dwelling And:	Distance Between Objects[1]	Fire Rated Construction[2,5]
Detached garage or accessory building on same property	Less than 5 feet	3/4−hour wall[3] 1/3−hour door or window[3]
Another dwelling on same property	Less than 5 feet	3/4−hour wall[4] 1/3−hour door or window[4]
Detached garage, accessory building, or other dwelling on same property	5 to 10 feet	3/4−hour wall[3] No requirement on open-ings
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

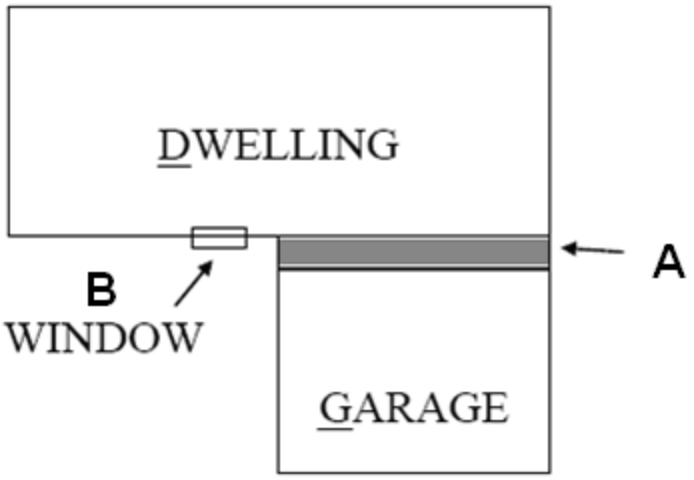
[1]Distance shall be measured perpendicular from wall to wall or property line, ignoring overhangs.

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

[3] Fire rated construction may be in either facing wall.

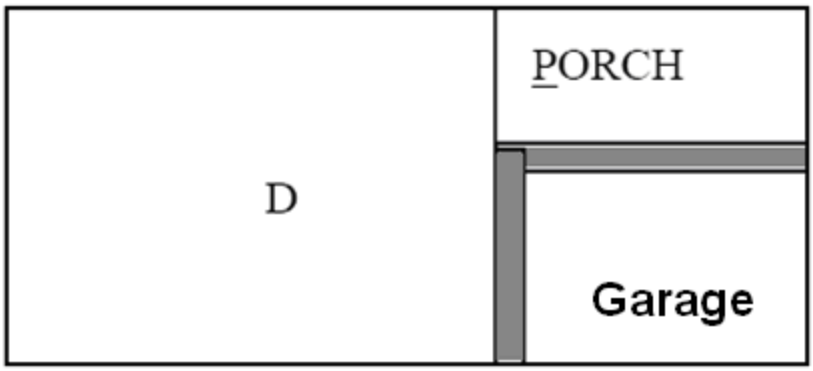
[4] Fire rated construction shall be in both facing walls.

[5] The methods for garage separation in par. (a) 1. are examples of ¾ hour wall construction.



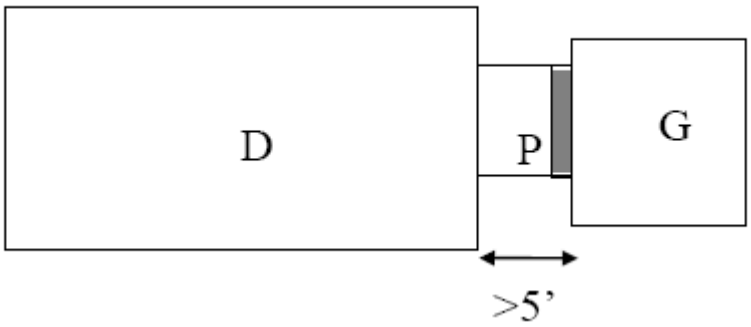
30. The walls and ceiling between an attached garage and any portion of the dwelling, including attic or soffit areas, shall be ____ hour fire–resistive construction. (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. all of the above
31. The window B above should be ___ hour rated?
    a. ¾
    b. ½
    c. 1/3
    d. none of the above

FIG. B



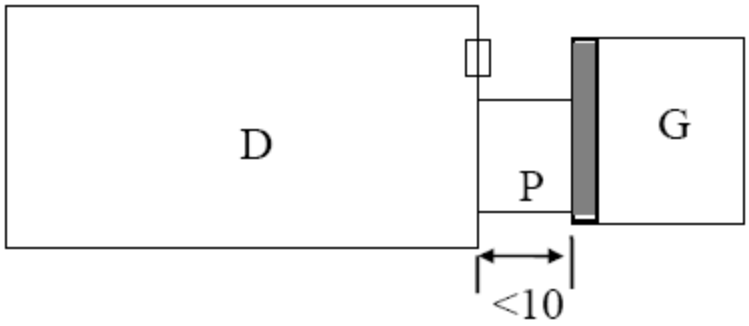
32. The wall between the porch and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. all of the above

FIG. D



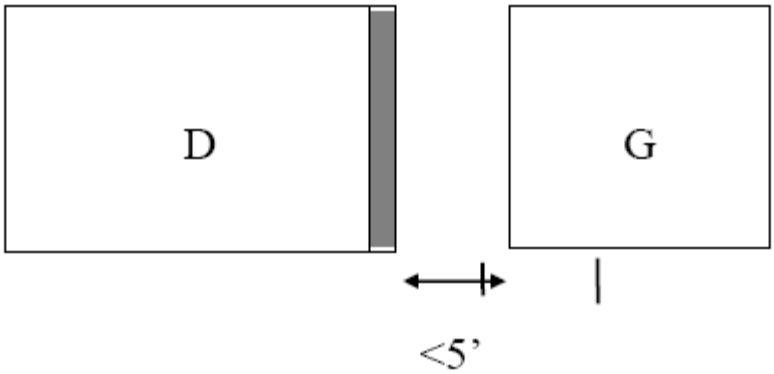
33. The wall between the porch and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. all of the above

FIG. E



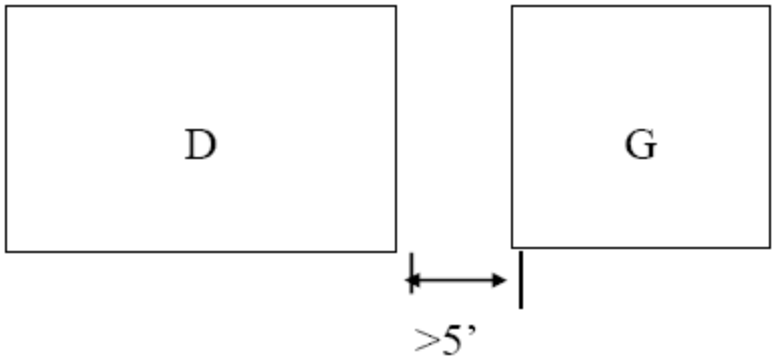
34. The wall between the porch and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. all of the above

FIG. F



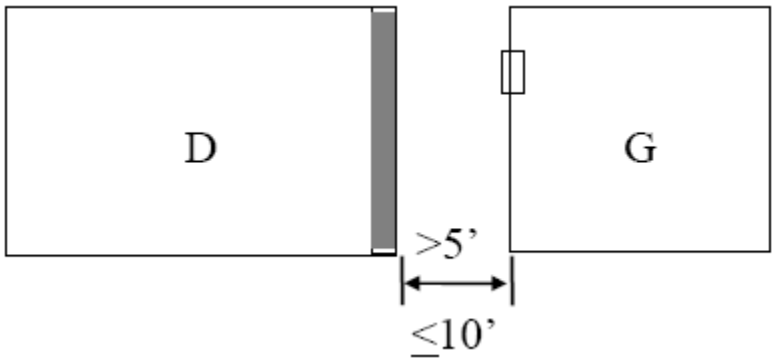
35. The wall between the dwelling and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. all of the above

FIG. G



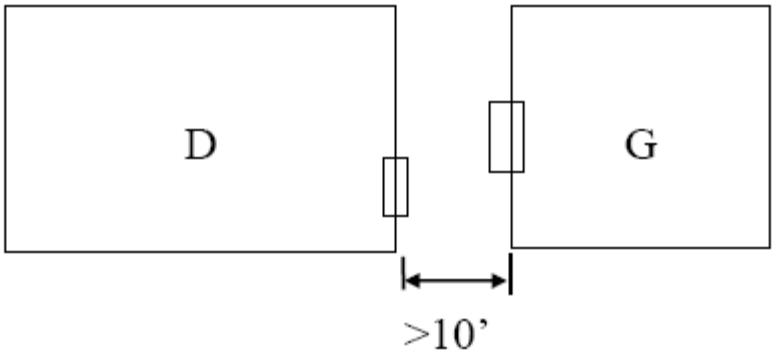
36. The wall between the dwelling and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. all of the above

FIG. H



37. The window between the dwelling and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. none of the above

FIG. I



38. The window between the dwelling and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. none of the above
39. The wall between the dwelling and garage should be ___ hour rated? (Use the diagram above)
    a. ¾
    b. ½
    c. 1/3
    d. none of the above

21.085(1) Fireblocking of Tubs and Showers
Question: How should tub/shower units be fireblocked?
Answer: For most units, there should be no need for fireblocking since interconnected vertical concealed spaces do not require fireblocking. However, if the unit had a canopy with a dropped soffit, then the fireblocking requirements would apply to the interconnected vertical and horizontal concealed spaces, similar to kitchen cabinet soffits. Also, the floor below a tub should be fireblocked if it allows air/fire passage between levels within concealed spaces.
21.085 Fiberglass Insulation as Fireblocking
Question: Is fiberglass insulation acceptable as a fireblocking and draftstopping material?
Answer: As a fireblocking material, yes. As a draftstopping material, no. This section allows other noncombustible materials in lieu of the traditional 2 inch nominal wood or drywall firestops. Unfaced fiberglass batt insulation has passed the E-136 (ASTM) test for non-combustibility. Therefore, such insulation will be allowed as firestopping if it is tightly packed such that it will be held in place.

40. The floor below a tub should be fireblocked if it allows air/fire passage between levels within concealed spaces.
    a. true
    b. false
41. If the tub or shower unit had a canopy with a dropped soffit, then the fireblocking requirements would apply to the interconnected _____ concealed spaces, similar to kitchen cabinet soffits.
    a. vertical
    b. horizontal
    c. none of the above
    d. both a & b
42. Is fiberglass insulation acceptable as a draftstopping material?
    a. yes
    b. no
43. Insulation will be allowed as firestopping if it is lightly packed such that it will be held in place.
    a. true
    b. false

Comm 21.09 Smoke detectors. (1) 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 outside of the sleeping rooms, within 21 feet of the centerline of the door opening to any sleeping room 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.
(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.
(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.
(3) For family living units with one or more communicating split levels or open adjacent levels with less than 5 feet of separation between levels, one smoke detector on the upper level shall suffice for an adjacent lower level, including basements. Where there is an intervening door between one level and the adjacent lower level, smoke detectors shall be installed on each level.
(4) Smoke alarms and detectors shall be maintained in accordance with the manufacturer's specifications.
(5) For envelope dwellings, at least 3 smoke alarms shall be placed in the air passageways. The alarms shall be placed as far apart as possible.
(6) In basements where two required exits are separated by a continuous wall, a smoke detector shall be placed on each side of the wall within 21 feet of each exit.
Question: If a contractor or owner wants to have additional smoke detectors over and above the minimum required by the Code, can they be battery-operated or must they be hard wired into the required system(s)?
Answer: Yes, if an owner wants a battery-operated smoke detector in every room or closet, they can do that.
Question: Should smoke detectors be connected to a separate, dedicated circuit or can they be tied to any lighting or outlet circuit?
Answer: Unlike fire alarm systems in commercial applications, the Department's recommendation is to connect the smoke detectors to a common lighting circuit and be connected ahead of any local switches. That way, if the circuit breaker trips, the owner will be aware that his smoke detector and alarms are not operational because his hallway or kitchen (etc.) lights aren't working.

44. 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 outside of the sleeping rooms, within 21 feet of the centerline of the door opening to any sleeping room 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.

d. all of the above

45. 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.

a. true

b. false

46. For family living units with one or more communicating split levels or open adjacent levels with less than ___ feet of separation between levels, one smoke detector on the upper level shall suffice for an adjacent lower level, including basements.

a. 4

b. 5

c. 6

d. none of the above

47. Where there is an intervening door between one level and the adjacent lower level, a smoke detector shall be installed on the lower level.

a. true

b. false

48. Smoke alarms and detectors shall be maintained in accordance with the _____.

a. UL listing

b. local rules

c. manufacturer's specifications

d. all of the above

49. In basements where two required exits are separated by a continuous wall, a smoke detector shall be placed on each side of the wall within ___ feet of each exit.

a. 15

b. 21

c. 6

d. none of the above

50. If a contractor or owner wants to have additional smoke detectors over and above the minimum required by the Code, they can be battery-operated.

a. true

b. false

51. Smoke detectors must be connected to a separate, dedicated circuit.

a. true

b. false

Comm 21.097 Carbon monoxide alarms. (1) DEFINITIONS. In this section: (a) "Fuel−burning appliance" has the meaning given in s.101.647 (1) (b), Stats. Fuel−burning appliances include stoves, ovens, grills, clothes dryers, furnaces, boilers, water heaters, fireplaces and heaters.

(2) NEW CONSTRUCTION. (a) *General.* Except as provided in sub. (4), listed and labeled carbon monoxide alarms shall 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 after February 1, 2011.
(b) *Location.* 1. On floor levels that contain one or more sleeping areas, a carbon monoxide alarm shall be installed outside of the sleeping area, within 21 feet of the centerline of the door opening to any sleeping area and in an exit path from any sleeping area.
2. On floor levels that do not contain a sleeping area, a carbon monoxide alarm shall be installed in a common area on each floor level.
(c) *Electrical service and interconnection.* 1. Except as provided in subd. 2., carbon monoxide alarms shall be continuously powered by the house electrical service, shall have a backup power supply and shall be interconnected so that activation of one alarm will cause activation of all alarms.
2. Dwellings with no electrical service shall be provided with battery−powered carbon monoxide alarms in the locations under par. (b). Interconnection is not required in these dwellings.
(d) *Standards.* The devices shall conform with one of the following standards:
1. Carbon monoxide alarms shall be listed and labeled identifying conformance with UL 2034.
Note: Pursuant to this subdivision, carbon monoxide alarms need to be acceptable under the 2005 edition of the UL 2034 standard, *Single and Multiple State Carbon Monoxide Alarms*.
2. Carbon monoxide detectors and sensors as part of a gas detection or emergency signaling system shall be listed and labeled identifying conformance with UL 2075.
Note: Note: Pursuant to this subdivision, carbon monoxide detectors and sensors need to be acceptable under the 2007 edition of the UL 2075 standard, *Gas and Vapor Protectors and Sensors*.
Section 101.647 (2) to (6), Stats., reads:
(2) INSTALLATION AND SAFETY CERTIFICATION. The owner of a dwelling shall install any carbon monoxide detector required under this section according to the directions and specifications of the manufacturer of the carbon monoxide detector. A carbon monoxide detector required under this section shall bear an Underwriters Laboratories, Inc., listing mark and may be a device that is combined with a smoke detector.
(3) REQUIREMENTS. (a) The owner of a dwelling shall install a functional carbon monoxide detector in the basement of the dwelling and on each floor level except the attic, garage, or storage area of each dwelling unit. A carbon monoxide detector wired to the dwelling's electrical wiring system shall have a backup battery power supply. Except as provided under par. (b), the occupant of the dwelling unit shall maintain any carbon monoxide detector in that unit. This paragraph does not apply to the owner of a dwelling that has no attached garage, no fireplace, and no fuel−burning appliance.
(am) 1. If the building permit for the initial construction of a dwelling was issued on or after February 1, 2011, and the electrical service for the dwelling is provided by a public utility, as defined in s. 196.01 (5), the owner of the dwelling shall install each carbon monoxide detector required under par. (a) so that it is powered by the dwelling's electrical wiring system, except as provided under subd. 2.
2. The requirement that each carbon monoxide detector be installed in the manner provided under subd. 1. does not apply to a dwelling if the dwelling, when initially constructed, had no attached garage, no fireplace, and no fuel−burning appliance. (b) If any occupant who is not the owner of a dwelling, or any person authorized by state law or by city, village, town, or county ordinance or resolution to exercise powers or duties involving inspection of real or personal property, gives written notice to the owner that the carbon monoxide detector is not functional, the owner shall provide, within 5 days after receipt of that notice, any maintenance necessary to make that carbon monoxide detector functional.
(4) INSPECTION. The department or person authorized by state law or by city, village, town, or county ordinance or resolution to exercise powers or duties involving inspection of real or personal property may inspect new dwellings and, at the request of the owner or renter, may inspect the interior of a dwelling unit in a dwelling to ensure compliance with this section.
(5) LIABILITY EXEMPTION. The owner of a dwelling is not liable for damages resulting from any of the following:

(a) A false alarm from a carbon monoxide detector if the carbon monoxide detector was reasonably maintained by the owner of the dwelling.
(b) The failure of a carbon monoxide detector to operate properly if that failure was the result of tampering with, or removal or destruction of, the carbon monoxide detector by a person other than the owner of the dwelling or the result of a faulty detector that was reasonably maintained by the owner of the dwelling.
(6) TAMPERING PROHIBITED. No person may tamper with, remove, destroy, disconnect, or remove batteries from an installed carbon monoxide detector, except in the course of inspection, maintenance, or replacement of the detector.

52. Fuel−burning appliances include stoves, ovens, grills, clothes dryers, furnaces, boilers, water heaters, fireplaces and heaters.
    a. true
    b. false
53. _____carbon monoxide alarms shall be installed and maintained in one and 2−family dwellings, for which building permit applications were made or construction commenced on or after February 1, 2011.
    a. Listed
    b. Labeled
    c. Approved
    d. both a & b
54. On floor levels that contain one or more sleeping areas, a carbon monoxide alarm shall be installed outside of the sleeping area, within ___ feet of the centerline of the door opening to any sleeping area and in an exit path from any sleeping area.
    a. 15
    b. 21
    c. 6
    d. none of the above
55. On floor levels that do not contain a sleeping area, a carbon monoxide alarm shall be installed in a _____ area on each floor level.
    a. foyer
    b. kitchen
    c. common
    d. all of the above
56. Carbon monoxide alarms shall _____so that activation of one alarm will cause activation of all alarms.
    a. be continuously powered by the house electrical service
    b. have a backup power supply
    c. be interconnected
    d. all of the above
57. Dwellings with no electrical service shall be provided with battery−powered carbon monoxide alarms in the locations under par. (b). Interconnection is not required in these dwellings.
    a. true
    b. false
58. The devices shall conform with one of the following standards:
    a. Carbon monoxide alarms shall be listed and labeled identifying conformance with UL 2034.
    b. Carbon monoxide detectors and sensors as part of a gas detection or emergency signaling system shall be listed and labeled identifying conformance with UL 2075.
    c. both a or b
    d. none of the above

59. The owner of a dwelling shall install any carbon monoxide detector required under this section according to the directions and specifications of the manufacturer of the carbon monoxide detector. A carbon monoxide detector required under this section shall bear an Underwriters Laboratories, Inc., listing mark and may be a device that is combined with a _____.

a. fire alarm
b. smoke detector
c. gas detector
d. all of the above

60. The owner of a dwelling shall install a functional carbon monoxide detector in the basement of the dwelling and on each floor level including the attic, garage, or storage area.

a. true
b. false

61. A carbon monoxide detector wired to the dwelling's electrical wiring system may have a backup battery power supply.

a. true
b. false

62. The carbon monoxide alarm requirements do not apply to the owner of a dwelling that has no attached garage, no fireplace, and no fuel−burning appliance.

a. true
b. false

63. The owner of a dwelling is not liable for damages resulting from any of the following:

a. A false alarm from a carbon monoxide detector if the carbon monoxide detector was reasonably maintained by the owner of the dwelling.
a. The failure of a carbon monoxide detector to operate properly if that failure was the result of tampering with, or removal or destruction of, the carbon monoxide detector by a person other than the owner of the dwelling or the result of a faulty detector that was reasonably maintained by the owner of the dwelling.
c. both a or b
d. none of the above

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(3) EXISTING DWELLINGS. Except as provided in sub. (4), listed and labeled carbon monoxide alarms shall 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 initial construction commenced on or after June 1, 1980, and before February 1, 2011.

(4) TOURIST ROOMING HOUSES. (a) Listed and labeled carbon monoxide alarms with battery secondary power supplies shall be installed and maintained in dwellings to be utilized as licensed tourist rooming houses and that contain fuel−burning appliances in accordance with s. 101.149 (2) and (3), Stats. Note: Section 101.149 (2) and (3), Stats., reads:

(2) INSTALLATION REQUIREMENTS. (a) Except as provided in par. (b), the owner of a residential building shall install a carbon monoxide detector in all of the following places not later than the date specified under par. (c):

1. In the basement of the building if the basement has a fuel−burning appliance.
2. Within 15 feet of each sleeping area of a unit that has a fuel−burning appliance.
3. Within 15 feet of each sleeping area of a unit that is immediately adjacent to a unit that has a fuel−burning appliance.
4. In each room that has a fuel−burning appliance and that is not used as a sleeping area. A carbon monoxide detector shall be installed under this subdivision not more than 75 feet from the fuel−burning appliance.

5. In each hallway leading from a unit that has a fuel−burning appliance, in a location that is within 75 feet from the unit, except that, if there is no electrical outlet within this distance, the owner shall place the carbon monoxide detector at the closest available electrical outlet in the hallway.
(b) If a unit is not part of a multiunit building, the owner of the residential building need not install more than one carbon monoxide detector in the unit.

64. Listed and labeled carbon monoxide alarms shall 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 initial construction commenced _____.

a. on or after June 1, 1980
b. before February 1, 2011
c. both a & b
d. none of the above

65. The owner of a residential building shall install a carbon monoxide detector in all of the following places by February 1, 2011:

a. In the basement of the building if the basement has a fuel−burning appliance.
b. Within 15 feet of each sleeping area of a unit that has a fuel−burning appliance.
c. Within 15 feet of each sleeping area of a unit that is immediately adjacent to a unit that has a fuel−burning appliance.
d. all of the above

66. The owner of a residential building shall install a carbon monoxide detector in all of the following places by February 1, 2011:

a. In each room that has a fuel−burning appliance and that is not used as a sleeping area. A carbon monoxide detector shall be installed under this subdivision not more than 75 feet from the fuel−burning appliance.
b. In each hallway leading from a unit that has a fuel−burning appliance, in a location that is within 75 feet from the unit, except that, if there is no electrical outlet within this distance, the owner shall place the carbon monoxide detector at the closest available electrical outlet in the hallway.
c. both a & b
d. none of the above

67. If a unit is not part of a multiunit building, the owner of the residential building need not install more than ____ carbon monoxide detector in the unit.

a. 1
b. 2
c. 3
d. none

Comm 21.10 Protection Against Decay and Termites
Question: An interior wood frame wall is placed on a continuous concrete footing in the basement and is used in place of a beam for support of the floor system above. The top of the footing will be level with the basement floor. Does the sole plate of this wall have to be pressure treated with a preservative or be decay-resistant lumber? Answer: Subsection Comm 21.10 (1)(g) states that wood used in basements for bearing walls shall comply. This is a bearing wall and, therefore, must comply.

68. A basement load bearing wall must have a _____ bottom plate.

a. preservative treated
b. decay resistant
c. both a or b
d. none of the above

Comm 21.11 Foam Plastic Insulation Protection

The department has been asked whether foam plastic sheathing located on the gable ends of an unoccupied attic must be directly covered with a thermal barrier. The foam plastic is required to be separated from the living space by a thermal barrier. In this case, if a thermal barrier is located on the ceiling, such as the interior gypsum drywall, the foam plastic is adequately separated from the living space and no direct protection is required. We have also been asked if foam plastic on the interior of a crawlspace needs to be covered. If the crawlspace does not openly communicate with an adjacent basement or other living space, then the floor sheathing is adequate to separate the foam plastic from the rest of the dwelling. However, if the crawlspace adjoins a basement or other space so that there was free air flow between the two, then the foam must be covered. Another question has been raised about the use of foam plastic insulation on the interior of return air ducts. Sections Comm 21.11 and 23.08 prohibit the placement of unprotected combustible foam plastic on the interior of supply and return air spaces. Comm 23.08(2)(a) requires ducts to be constructed of or lined with a noncombustible material. An exception is made for unlined wood joists or stud spaces. Therefore, combustible foam plastics located on the interior of duct spaces must be protected by a noncombustible 15-minute thermal barrier. Finally it has been asked if foam insulation in attached garages needs to be protected. Yes it does because the requirement applies to any space where occupants may be present or to which they may be indirectly exposed. An important exception to the protection requirement in the Celotex Thermax brand foam insulation which has received a Wisconsin Building Materials Approval (#200614-I) to be installed without protection. This is based on diversified testing that simulates actual fire conditions.

69. The foam plastic is required to be separated from the living space by_____.
    a. insulation
    b. a thermal barrier
    c. firewall
    d. fireblocking
70. If the crawlspace adjoins a basement or other space so that there was free air flow between the two, then the foam_____.
    a. is allowed
    b. must be covered
    c. could be Celotex Thermax brand foam
    d. both b or c
71. Foam plastic insulation is allowed on the interior of return air ducts.
    a. true
    b. false
72. Combustible foam plastics located on the interior of duct spaces must be protected by a noncombustible ___-minute thermal barrier.
    a. 10
    b. 15
    c. 20
    d. 30
73. Foam insulation in attached garages needs to be protected by a ____-minute thermal barrier.
    a. 10
    b. 15
    c. 20
    d. 30

74. An important exception to the protection requirement in the _____ brand foam insulation which has received a Wisconsin Building Materials Approval (#200614-I) to be installed without protection.

a. Certainteed
b. Dow
c. Celotex Thermax
d. all of the above

21.125 & 21.126 Erosion and Sediment Control and Storm Water Management. See the UDC Appendix for erosion control and storm water management information, including references to DNR & DOT websites for design standards. Also see Commerce – Safety & Buildings website for Soil Erosion program information, to get the latest information on design and requirements during and after dwelling construction.

75. see Commerce – Safety & Buildings website for Soil Erosion program information, to get the latest information on design and requirements _____ dwelling construction.

a. during
b. after
c. before
d. both a & b

21.15(1)(e) Floating Slabs or Similar Shallow Foundations
Comm 21.15(1)(e) requires structures with frost foundations to be structurally isolated for the entire building height from portions of the building structure constructed on floating slabs. This is needed so that portions that do not move will not separate from those that "float" under frost forces, as well as so that exits are not obstructed by relative movement of dwelling portions. A structural engineer could have some details that will work for the different types of materials used at these locations that need a different type of connector. Slip-joints can permit vertical deflection to occur, while maintaining horizontal load integrity of the structure. Load paths will be critical to determine what is acceptable there and what will not be permitted for connections.

76. _____can permit vertical deflection to occur, while maintaining horizontal load integrity of the structure.

a. Hinge joints
b. Slip-joints
c. both a or b
d. none of the above

77. A _____ could have some details that will work for the different types of materials used at these locations that need a different type of connector.

a. siding contractor
b. roofing contractor
c. structural engineer
d. all of the above

21.15(2)(f) Deck Footings
Decks that are used in the required egress paths, even though physically separated, must comply with the UDC. Footings must be designed to carry the loads of the deck. They may be supported by frost footings or by a floating slab per Comm 21.15(2)(e). If the latter option is chosen, then care should be taken to avoid differential settlement or frost heave that could block the egress path. For the latter concern, a step down may be desirable.

78. Decks that are used in the required egress paths, even though physically separated, may be supported by _____.

a. frost footings
b. a floating slab
c. both a or b
d. none of the above

21.15(2)(a) Unstable Soil

Forming of a continuous footing is required if you encounter an unstable soil. Per the note, an unstable soil would be one that can not support itself at an approximately 90 degree angle for the full depth of the footing. Examples of unstable soils would be sands or gravels.

79. Examples of unstable soils would be soils that can not support itself at an approximately ___ degree angle for the full depth of the footing.

a. 45
b. 60
c. 90
d. 180

21.15(2)(e) Floating Slabs

Section 21.16generally requires a 48-inch footing depth to prevent frost damage. There are some exceptions to allow lesser footing depths provided measures are taken to prevent frost heave damage to the structure. Some measures which may be considered to help prevent damage, if over and above the code minimum requirements, include:

 Verification of good soils (well-drained, granular) which may be less subject to retaining water which may freeze and expand.
 Additional drainage at the affected footing in conjunction with good surface drainage.
 Providing reinforcement in the affected footing and/or foundation wall.
 Providing reinforced perimeter grade beams in slab-on-grade construction.
 Providing a mechanical tie or continuous reinforcement to bind the stoops or ramps to the foundation wall to resist relative movement. This would help prevent obstruction of exit doors or gaps at the wall to stoop interface.
 Overdesigning the foundation or structure to recognize the potential for some soil-caused deflection.
 Insulate the soil around the building perimeter with foam board laid horizontally just below the ground surface.

Most times a qualified engineer should make the determination which of the above, or other, measures is inherent in the situation or may be required to gain code compliance. The engineer's report should be submitted to the local inspector for approval.

80. Some measures which may be considered to help prevent damage, if over and above the code minimum requirements, include:

a. Providing a mechanical tie or continuous reinforcement to bind the stoops or ramps to the foundation wall to resist relative movement. This would help prevent obstruction of exit doors or gaps at the wall to stoop interface.
b. Overdesigning the foundation or structure to recognize the potential for some soil-caused deflection.
c. Insulate the soil around the building perimeter with foam board laid horizontally just below the ground surface.
d. all of the above

81. Some measures which may be considered to help prevent damage, if over and above the code minimum requirements, include:
    a. Verification of good soils (well-drained, granular) which may be less subject to retaining water which may freeze and expand.
    b. Additional drainage at the affected footing in conjunction with good surface drainage.
    c. Providing reinforcement in the affected footing and/or foundation wall.
    d. all of the above
82. The engineer's report should be submitted to the _____ for approval.
    a. builder
    b. foundation contractor
    c. local inspector
    d. all of the above

21.15(2)(f) Deck Column Footing Size

Deck footings are required [s. 21.225(2)] to be designed with a bearing area equal or greater than the area required to transfer live and dead loads to the supporting soil without exceeding the bearing value of the soil. In lieu of a designed footing, the code required minimum size or a column footing of 24" x 24' x 12" thick should be used in accordance with Comm 21.15(2)(b). In designing a column footing for a deck, the following steps should be utilized:

1) Calculate the tributary area for floor and any roof area that the column carries.
2) Multiply the floor area by the code required live load and actual dead loads. Do the same for any roof area.
3) Divide the total load from 2) by the this site's allowable soil bearing value listed in the Table at the end of s. Comm 21.15(3) to find the minimum footing size in square feet.
4) To provide adequate spread of the load through the concrete or gravel footer, its thickness should be at least one-half of its diameter, but in no case less than 8".

83. The code required minimum size or a column footing of 24" x 24' x 12" thick should be used in accordance with Comm 21.15(2)(b) for all deck footings.
    a. true
    b. false
84. In designing a column footing for a deck, the following steps should be utilized:
    a. Calculate the tributary area for floor and any roof area that the column carries.
    b. Multiply the floor area by the code required live load and actual dead loads. Do the same for any roof area.
    c. both a or b
    d. none of the above
85. In designing a column footing for a deck, the following steps should be utilized:
    a. Divide the total load from 2) by the this site's allowable soil bearing value listed in the Table at the end of s. Comm 21.15(3) to find the minimum footing size in square feet.
    b. To provide adequate spread of the load through the concrete or gravel footer, its thickness should be at least one-half of its diameter, but in no case less than 8".
    c. both a or b
    d. none of the above

Question: How does one determine if the local frost penetration is greater than the 48-inch minimum requirement by code?

Answer: In most cases, you will find that the average frost depth does not exceed the 48-inch depth. A good source for the average local conditions of frost is to check with the people involved with the installation of utilities or grave digging.

86. In most cases, you will find that the average frost depth does exceed the 48-inch depth.
    a. true
    b. false

21.16(2)(a) Frost Protected Shallow Foundations

Question: Are frost-protected footings allowed and what standards must be followed in the construction of footings or slabs-on-grade without going below frost levels?

Answer: Yes. Frost-protected footings are allowed and by Comm 21.16(2)(a) are to be designed to ASCE-32-01 standard adopted with 2009 code changes.

Frost-protected footings (FPF) is an internationally recognized and accepted technique of protecting slab-on-grade foundations of heated buildings against frost action. The FPFs use rigid horizontal perimeter insulation to reduce heat loss from the ground around the dwelling. This heat keeps the ground from freezing and frost action on the structure. The FPFs have been used in Scandinavian countries since the 1950s and more recently in the United States. See the UDC Appendix for a public domain version of this design methodology. Note that if the heated building design is chosen, the current and future owners need be made aware of the need to keep the dwelling heated in the winter to avoid frost damage.

87. Note that if the heated building design is chosen, the _____ owners need be made aware of the need to keep the dwelling heated in the winter to avoid frost damage.
    a. current
    b. future
    c. both a or b
    d. none of the above

88. Frost-protected footings are allowed and by _____ are to be designed to ASCE-32-01 standard adopted with 2009 code changes.
    a. Comm 21.16(2)(b)
    b. Comm 21.16(2)(a)
    c. both a or b
    d. none of the above

21.17 Determination of Drain Tile Need

Where municipalities exercise jurisdiction over requiring drain tile within their community, they should provide sufficient notice to the building permit applicant by indicating to the applicant at the time that the plans are approved how the municipality handles enforcement of drain tile. This means that the municipality, plan reviewer, or inspector should at the time the plans are approved indicate whether or not the community will require drain tile to be provided with Comm 21.17, not require drain tile to be provided, or will make a determination as to whether or not drain tile will be required upon an inspection visit to the excavated site. This allows the communities to either have a blanket policy of a requirement or non-requirement for drain tile, and still allows them the flexibility to make that determination upon viewing the excavation, wherein they can determine soil types and sometimes water elevation. It is the department's position that for the drain tile requirement, the decision should be made as early on in the permit, plan review, inspection process as possible and that decision should be documented in review comments or inspection reports. In response to questions and concerns regarding work continuing after an inspection has not been carried out after the 2-days after date of notification requirement, municipalities and inspectors should inform the builder or owner that they are proceeding at their own risk, and at the time the municipality or inspector makes the inspection they may still require the drain tile to be provided in accordance with Comm 21.17. A municipality may use various criteria other than a soil test report (per s. Comm 21.17(1)(b) to determine where drain tile systems are required. Such criteria may include county soil maps, direct observation of standing water in the excavation, and experience with other sites in the locality. There is substantial discretion given to the local inspector. It is recommended that the criteria for

this local discretion, or municipal policy, be uniformly applied within the municipality and expressed to builders before construction, such as at permit issuance. Where no local permit is required for an addition, the code requires the owner and builder to install drain tiles where a soil test indicates periodic or seasonal groundwater at the footing. Often times such homes are also in un-sewered areas. The soil test report for a private sewage system will indicate depth to seasonal groundwater. This report may be used to determine dwelling drain tile requirements if the house site is close to and is similar in soil and drainage characteristics to the private sewage system on that site. If a private sewage system soils report is not available or applicable, then the owner or builder may retain a qualified soils consultant (engineer, certified soil tester) to determine groundwater depth or rely on the experience of other projects in the area, if relevant.

89. A municipality may use various criteria other than a soil test report (per s. Comm 21.17(1)(b) to determine where drain tile systems are required. Such criteria may include _____.

a. county soil maps
b. direct observation of standing water in the excavation
c. experience with other sites in the locality
d. all of the above

90. The soil test report for a private sewage system will indicate depth to _____.

a. frost depth
b. seasonal groundwater
c. both a or b
d. none of the above.

UDC Commentary 21 Part 2 Code Refresher Quiz-Answer Sheet

1	a	b	c	d	31	a	b	c	d	61	a	b	c	d
2	a	b	c	d	32	a	b	c	d	62	a	b	c	d
3	a	b	c	d	33	a	b	c	d	63	a	b	c	d
4	a	b	c	d	34	a	b	c	d	64	a	b	c	d
5	a	b	c	d	35	a	b	c	d	65	a	b	c	d
6	a	b	c	d	36	a	b	c	d	66	a	b	c	d
7	a	b	c	d	37	a	b	c	d	67	a	b	c	d
8	a	b	c	d	38	a	b	c	d	68	a	b	c	d
9	a	b	c	d	39	a	b	c	d	69	a	b	c	d
10	a	b	c	d	40	a	b	c	d	70	a	b	c	d
11	a	b	c	d	41	a	b	c	d	71	a	b	c	d
12	a	b	c	d	42	a	b	c	d	72	a	b	c	d
13	a	b	c	d	43	a	b	c	d	73	a	b	c	d
14	a	b	c	d	44	a	b	c	d	74	a	b	c	d
15	a	b	c	d	45	a	b	c	d	75	a	b	c	d
16	a	b	c	d	46	a	b	c	d	76	a	b	c	d
17	a	b	c	d	47	a	b	c	d	77	a	b	c	d
18	a	b	c	d	48	a	b	c	d	78	a	b	c	d
19	a	b	c	d	49	a	b	c	d	79	a	b	c	d
20	a	b	c	d	50	a	b	c	d	80	a	b	c	d
21	a	b	c	d	51	a	b	c	d	81	a	b	c	d
22	a	b	c	d	52	a	b	c	d	82	a	b	c	d
23	a	b	c	d	53	a	b	c	d	83	a	b	c	d
24	a	b	c	d	54	a	b	c	d	84	a	b	c	d
25	a	b	c	d	55	a	b	c	d	85	a	b	c	d
26	a	b	c	d	56	a	b	c	d	86	a	b	c	d
27	a	b	c	d	57	a	b	c	d	87	a	b	c	d
28	a	b	c	d	58	a	b	c	d	88	a	b	c	d
29	a	b	c	d	59	a	b	c	d	89	a	b	c	d
30	a	b	c	d	60	a	b	c	d	90	a	b	c	d

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Credential Number_____ Phone#_____

Course Title and Name UDC Commentary 21 Refresher Quiz **Part 2**

List each credential held by attendee_____

_____ Credited Hours 3hrs Fee:$30

Email address_____ Fax#_____

To be completed by GaryKlinka.com

Course Password_____ Course ID# 12911

Attendee passed the course with a greater than 70% score on Date_____

Instructor Signature_____