

Excavations Quiz

Instructions

Fee \$60

1. Print these pages and [Click Here](#) for the **necessary** OSHA [reference materials](#).
2. Answer the **Simple questions** that closely follow the reference materials in a **consecutive** order.
3. Circle the correct answers and transfer the answers to [the answer sheets](#) (see last 2 pages).
4. Page down to the last page for the [verification form](#), answer sheets and mailing instructions.

6 hour course for:

- | | |
|--|---|
| 1. Automatic Fire Sprinkler Contractor. | 12. Journeyman Plumber-Restricted Service |
| 2. Automatic Fire Sprinkler Contractor Maintenance | 13. Master Electrician |
| 3. Registered-Beginner Electrician | 14. Master Plumber |
| 4. Boiler-Pressure Vessel Inspector | 15. Master Plumber-Restricted Service |
| 5. Commercial Electrical Inspector | 16. POWTS Inspector |
| 6. Commercial Plumbing Inspector | 17. Residential Journeyman Electrician |
| 7. Dwelling Contractor Qualifier | 18. Residential Master Electrician |
| 8. Industrial Journeyman Electrician | 19. Soil Tester |
| 9. Journeyman Automatic Fire Sprinkler Fitter | 20. UDC-Electrical Inspector |
| 10. Journeyman Electrician | 21. UDC-Plumbing Inspector |
| 11. Journeyman Plumber | 22. Utility Contractor |

Questions: call Amy at 920-727-9200 or 920-740-4119 or 920-740-6723 or email aklinka@hotmail.com

Introduction

1. Excavation and trenching are among the most hazardous construction operations. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, _____ of the Code of Federal Regulation (CFR), Part 1926.650, covers requirements for excavation and trenching operations.

- a. Title 129
- b. Title 29
- c. OSHA 29
- d. both b & c

What is the difference between an excavation and a trench?

2. OSHA defines an _____ as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. This can include anything from cellars to highways.

- a. trench
- b. excavation
- c. both a & b
- d. none of the above

3. A _____ is defined as a narrow underground excavation that is deeper than it is wide, and no wider than 15 feet

- a. trench
- b. excavation
- c. both a & b
- d. none of the above

What are the dangers of trenching and excavation operations?

4. _____ pose the greatest risk and are much more likely than other excavation-related accidents to result in worker fatalities.

- a. Falling loads
- b. Falls
- c. Hazardous atmospheres
- d. Cave-ins

What does the OSHA standard cover, and what protections does it offer?

5. The rule applies to all open excavations made in the earth's surface, excluding trenches.
- a. false
 - b. true

What kinds of excavations and trenches are not covered?

6. The standard does not apply to house foundation/basement excavations, including those that become trenches by definition when _____.
- a. constructing formwork
 - b. foundations
 - c. roofs
 - d. both a & b
7. For excavation and trench exemption to apply, all the following conditions must exist: The excavation is less than ___ feet deep or is benched for at least ___ feet horizontally for every ___ feet or less of vertical height.
- a. 7, 2, 5
 - b. 7 ½, 2, 5
 - c. 7 ½, 5, 2
 - d. none of the above
8. For excavation and trench exemption to apply, all the following conditions must exist: The bottom of the excavation, from the excavation face to the formwork or wall, is at least ___ feet wide, and wider if possible.
- a. 1
 - b. 2
 - c. 3
 - d. 4
9. The standard does not apply to house foundation/basement excavations, including those that become trenches by definition when constructing formwork, foundations, or walls. For excavation and trench exemption to apply, all the following conditions must exist:
- a. Minimal water, surface tension cracks, or other environmental conditions reduce the excavation's stability.
 - b. No heavy equipment is vibrating the excavation while employees are in it.
 - c. both a & b
 - d. none of the above
10. The standard does not apply to house foundation/basement excavations, including those that become trenches by definition when constructing formwork, foundations, or walls. For excavation and trench exemption to apply, all the following conditions must exist:
- a. Sufficient amount of crew members possible are performing the work.
 - b. Workers spend the sufficient amount of time in the excavation.
 - c. both a & b
 - d. none of the above
11. The standard does not apply to house foundation/basement excavations, including those that become trenches by definition when constructing formwork, foundations, or walls. For excavation and trench exemption to apply, all the following conditions must exist: Soil, equipment, and material surcharge loads are no closer to the top edge of the excavation than the

excavation is deep. When you use front-end loaders to dig the excavations, place the soil surcharge load as far back from the edge of the excavation as possible, but never closer than _____.

- a. 2 yards
- b. 2 feet
- c. 2 meters
- d. none of the above

12. This exemption does not apply to utility excavations or trenches, which are covered by _____ 1926.652.

- a. OSHA 29
- b. 29 CFR
- c. both a & b
- d. none of the above

Why is it important to preplan the excavation work?

13. Waiting until after the work has started to correct mistakes in _____ slows down the operation, adds to the cost, and increases the possibility of a cave-in or other excavation failure.

- a. shoring
- b. sloping
- c. both a & b
- d. none of the above

What safety factors should you consider when bidding on a job?

14. A safety checklist may prove helpful when you consider specific site conditions such as the following:

- a. Proximity and physical conditions of nearby structures.
- b. Surface and ground soils.
- c. Location of the soil table
- d. all of the above

15. You can determine these and other conditions through jobsite studies, observations, test borings for soil type or conditions, and consultations with local officials and utility companies. This information will help you determine the amount, kind, and cost of safety equipment you will need to perform the work in the _____ manner possible.

- a. cost efficient
- b. most efficient
- c. safest
- d. all of the above

How can you avoid hitting underground utility lines and pipes during excavation work?

16. Before starting work, the OSHA standard requires you to do the following: _____ the approximate location of utility installations—sewer, telephone, fuel, electric, and water lines; or any other underground installations.

- a. Calculate
- b. Estimate
- c. Determine
- d. all of the above

17. Before starting work, the OSHA standard requires you to do the following: Contact the _____ involved to inform them of the proposed work within established or customary local response times.

- a. utility companies
- b. owners
- c. neighboring owners

d. both a & b

18. Before starting work, the OSHA standard requires you to do the following: Ask the utility companies or owners to find the exact location of underground installations. If they cannot respond within ___ hours (unless the period required by state or local law is longer) or cannot find the exact location of the utility installations, you may proceed with caution.

- a. 12
- b. 24
- c. 36
- d. 48

19. If your excavation work exposes underground installations, _____ regulations require you to protect, properly support, or remove them.

- a. 29 CFR
- b. OSHA
- c. both a & b
- d. none of the above

What should you tell workers before they start the project?

20. When you share the details of your safety and health program with employees, it is important to emphasize the critical role you expect them to play in keeping the jobsite safe. These rules may include requirements that workers:

- a. Remove or maximize all surface obstacles at the worksite that may create a hazard.
- b. Wear or use prescribed protective gear and equipment correctly.
- c. Operate equipment only if they have been assigned and warned of some potential hazards.
- d. all of the above

21. It also is important to establish and maintain a _____ for the worksite that provides adequate systematic policies, procedures, and practices to protect employees from, and allow them to recognize, job-related safety and health hazards.

- a. safety management system
- b. health management system
- c both a & b
- d. none of the above

How can you prevent cave-ins?

22. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by

- a. Sloping or benching the bottom of the excavation.
- b. Supporting the bottom of the excavation.
- c. Placing a shield between the bottom of the excavation and the work area.
- d. none of the above

How do you choose the most appropriate protective system design?

23. Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, water content of soil, changes due to weather and climate, or other operations in the vicinity. _____ choose the most practical design approach for any particular circumstance.

Once you have selected an approach, however, the system must meet the required performance criteria.

- a. OSHA will
- b. You are free to
- c. The inspection agency will
- d. all of the above

24. _____— Use tabulated data such as tables and charts approved by a registered professional engineer to design the excavation. These data must be in writing and must include enough explanatory information, including the criteria for making a selection and the limits on the use of the data, for the user to make a selection. At least one copy of the data, including the identity of the registered professional engineer who approved it, must be kept at the worksite during construction of the protective system. After the system is completed, the data may be stored away from the jobsite, but a copy must be provided upon request to the Assistant Secretary of Labor for OSHA.

- a. Method 1
- b. Method 2
- c. Method 3
- d. Method 4

25. _____— Slope the sides to an angle not steeper than 1-1/2:1; for example, for every foot of depth, the trench must be excavated back 1-1/2 feet. All simple slope excavations 20 feet (6.11 meters) or less deep should have a maximum allowable slope of 1-1/2:1. These slopes must be excavated to form configurations similar to those for Type C soil, as described in Appendix B of the standard. A slope of this gradation or less is safe for any type of soil.

- a. Method 1
- b. Method 2
- c. Method 3
- d. Method 4

26. _____— Use a trench box or shield designed or approved by a registered professional engineer or based on tabulated data prepared or approved by a registered professional engineer. Timber, aluminum, or other suitable materials may also be used. OSHA standards permit the use of a trench shield (also known as a welder's hut) if it provides the same level of protection or more than the appropriate shoring system.

- a. Method 1
- b. Method 2
- c. Method 3
- d. Method 4

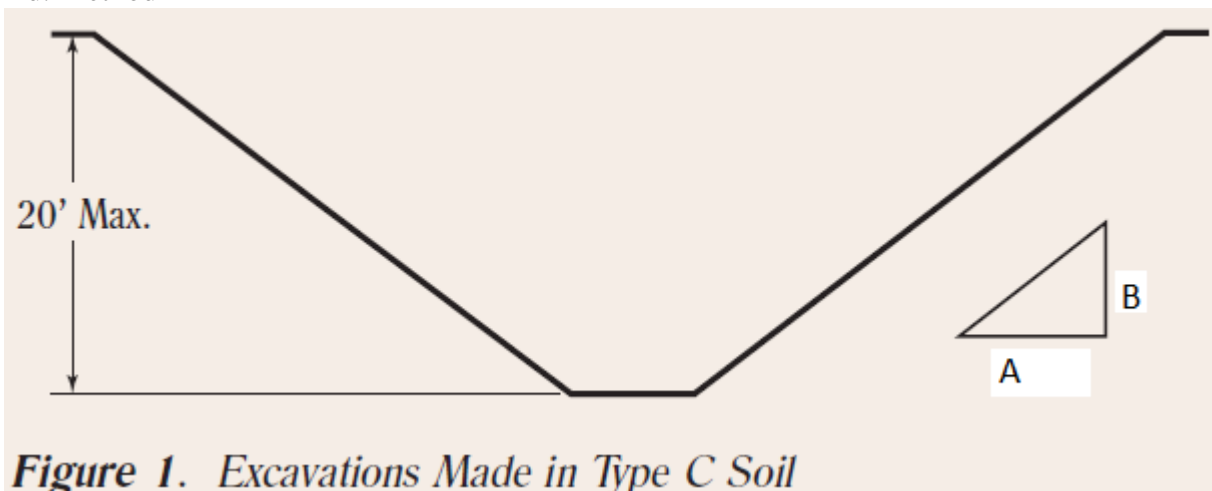


Figure 1. Excavations Made in Type C Soil

27. The letter “A” above represents _____?

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

28. The letter “B” above represents _____?

- a. 1

- b. 1.5
- c. 2
- d. 2.5

29. Employers can choose the most practical method for the particular circumstance, but that system must meet the required performance criteria. The standard does not require a protective system when an excavation is made entirely in stable _____.

- a. clay
- b. stone
- c. rock
- d. all of the above

30. Employers can choose the most practical method for the particular circumstance, but that system must meet the required performance criteria. The standard does not require a protective system when an excavation is less than ___ feet deep, if a competent person has examined the ground and found no indication of a potential cave-in.

- a. 3
- b. 4
- c. 5
- d. 6

What other safety precautions are you required to take?

31. The standard requires you to provide support systems such as _____ to ensure that adjacent structures such as buildings, walls, sidewalks, or pavements remain stable.

- a. shoring
- b. backfilling
- c. undermining
- d. all of the above

32. The standard also prohibits excavation below the base or footing of any foundation or retaining wall unless you provide a support system such as _____.

- a. shoring
- b. bracing
- c. underpinning
- d. all of the above

33. The standard also prohibits excavation below the base or footing of any foundation or retaining wall unless the excavation is in stable _____.

- a. soil
- b. gravel soil
- c. rock
- d. all of the above

34. The standard also prohibits excavation below the base or footing of any foundation or retaining wall unless a registered professional engineer determines that the structure is far enough away from the excavation and that excavation will not pose a hazard to employees.

- a. true
- b. false

35. Excavations under _____ are prohibited unless you provide an appropriately designed support system or another effective means of support.

- a. sidewalks
- b. pavements
- c. both a & b
- d. none of the above

How do you safely install and remove protective systems?

36. The standard requires you to take the following steps to protect employees when installing support systems:
- Connect majority of members of support systems securely.
 - Install other structural members to carry loads imposed on the support system when you need to remove individual members temporarily.
 - Try to avoid overloading members of support systems.
 - all of the above
37. In addition, the standard permits excavation of _____ or less below the bottom of the members of a support or shield system of a trench if the system is designed to resist the forces calculated for the full depth of the trench.
- 2 feet
 - .61 meters
 - 61 meters
 - both a & b
38. As soon as work is completed, you are required to backfill the excavation when you dismantle the protective system. After the excavation is cleared, remove the protective system from the _____, taking care to release members slowly.
- top down
 - top up
 - bottom down
 - bottom up

How should you maintain materials and equipment used for protective systems?

39. To avoid possible failure of a protective system, you must ensure that manufactured materials and equipment are used and maintained consistent with the _____ recommendations, so as to prevent employee exposure to hazards; and while in operation,
- competent person
 - manufacturer's
 - registered professional engineer
 - all of the above
40. To avoid possible failure of a protective system, you must ensure that a _____ examines any damaged materials and equipment. You must remove unsafe materials and equipment from service until a registered professional engineer evaluates and approves them for use.
- competent person
 - manufacturer's representative
 - registered professional engineer
 - all of the above

What other excavation hazards do you need to protect workers against?

41. To protect employees from these hazards, OSHA requires you to take the following precautions: Provide warning systems such as mobile equipment, barricades, hand or mechanical signals, or stop logs to alert operators to the edge of an excavation. If possible, keep the grade _____ the excavation.
- toward
 - equal to
 - away from
 - above
42. To protect employees from these hazards, OSHA requires you to take the following precautions: Keep materials or equipment that might fall or roll into an excavation at least _____ from the edge of excavations, or use retaining devices, or both.
- 2 feet

- b. .61 meters
- c. 61 meters
- d. both a & b

43. To protect employees from these hazards, OSHA requires you to take the following precautions: Provide _____ to remove loose rock or soil, or install protective barricades and other equivalent protection to protect employees against falling rock, soil, or materials.

- a. topping
- b. mounting
- c. scaling
- d. all of the above

44. To protect employees from these hazards, OSHA requires you to take the following precautions: Prohibit employees from working on faces of sloped or benched excavations at levels _____ other employees unless you provide the employees at the lower levels adequate protection from the hazard of falling, rolling, or sliding material or equipment.

- a. toward
- b. equal to
- c. away from
- d. above

What is the effect of water accumulation on excavation safety?

45. OSHA standards also require the use of _____ or other suitable means to prevent surface water from entering an excavation and to provide adequate drainage of the adjacent area.

- a. diversion ditches
- b. gutters
- c. clay dams
- d. all of the above

46. In addition, a _____ must inspect excavations subject to runoffs from heavy rains.

- a. competent person
- b. manufacturer's representative
- c. registered professional engineer
- d. all of the above

How can you protect workers against hazardous atmospheres inside excavations?

47. A competent person must test any excavation deeper than _____ or where an oxygen deficiency or a hazardous atmosphere is present or could reasonably be expected, such as a landfill or where hazardous substances are stored nearby, before an employee enters it.

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

48. If unhealthful atmospheric conditions exist or develop in an excavation, you must provide emergency rescue equipment such as a _____ and ensure that it is readily available.

- a. breathing apparatus
- b. safety belts
- c. standard stretcher
- d. all of the above

49. The equipment required equipment in the previous question above must be attended when in use.

- a. true
- b. false

What means of access and egress are you required to provide?

50. OSHA requires you to provide safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations _____ or deeper.
- 4'
 - 6'
 - 8'
 - none of the above
51. These access and egress devices must be located in the excavation within _____ of all workers.
- 20'
 - 25'
 - 30'
 - 50'
52. Any structural ramps you use in your operation must be designed by a _____ if they are used for employee access or egress, or by a competent person qualified in structural design if they are used for vehicles.
- competent person
 - manufacturer's representative
 - registered professional engineer
 - all of the above
53. Structural members used for ramps or runways must be uniform in thickness and joined in a manner to prevent _____.
- tripping
 - displacement
 - both a & b
 - none of the above

What protective equipment are employees in pier holes and confined footing excavations required to use?

54. An employee who enters a bell-bottom pier hole or similar deep and confined footing excavation must wear a _____ with a lifeline.
- body belt
 - harness
 - both a & b
 - none of the above
55. The lifeline must be attached securely to the body belt and must be separate from any line used to handle materials.
- true
 - false
56. While the employee wearing the lifeline is in the excavation, a _____ must be on hand to ensure that the lifeline is working properly and maintain communication with the employee.
- competent person
 - manufacturer's representative
 - registered professional engineer
 - none of the above

When should you conduct a site inspection?

57. The standard requires that a competent person inspect an excavation and the areas around it _____ for possible cave-ins, failures of protective systems and equipment, hazardous atmospheres, or other hazardous conditions.
- hourly

- b. twice a day
 - c. daily
 - d. weekly
58. Larger and more complex operations should have a full-time _____ who makes recommendations to improve implementation of the safety plan.
- a. competent person
 - b. supervisor
 - c. registered professional engineer
 - d. safety official
59. In a smaller operation, the above question required person may be part-time and usually will be a _____.
- a. competent person
 - b. supervisor
 - c. registered professional engineer
 - d. safety official
60. _____ are the contractor's representatives on the job. Supervisors should conduct inspections, investigate accidents, and anticipate hazards.
- a. supervisors
 - b. competent person
 - c. registered professional engineer
 - d. safety official

How does safety and health program management help employers and employees?

61. The guidelines identify four general elements critical to the development of a successful safety and health management program:
- a. Management leadership and employee participation
 - b. Worksite analysis
 - c. Hazard prevention and control
 - d. Safety and health training
 - e. all of the above

What are state plans?

62. Once OSHA approves a state plan, it funds ____ percent of the program's operating costs.
- a. 1/2
 - b. 50
 - c. 100
 - d. both a & b
63. There are ____ state plans: 23 cover both private and public (state and local government) employment, and 3 (Connecticut, New Jersey, and New York) cover only the public sector.
- a. 23
 - b. 3
 - c. 26
 - d. 50

How can consultation assistance help employers?

64. In addition to helping employers identify and correct specific hazards, OSHA's consultation service provides_____, onsite assistance in developing and implementing effective workplace safety and health management systems that emphasize the prevention of worker injuries and illnesses.
- a. low cost

- b. reduced cost
- c. free
- d. half price

Who can get consultation assistance and what does it cost?

65. Consultation assistance is available to small employers (with fewer than ____ employees at a fixed site and no more than ____ corporate wide) who want help in establishing and maintaining a safe and healthful workplace.
- a. 100, 200
 - b. 200, 400
 - c. 250, 500
 - d. 400, 600
66. Penalties or citations are typically issued for hazards identified by the consultant if the employer doesn't correct all identified serious hazards immediately.
- a. true
 - b. false

Excavations Quiz answer sheet

<u>1</u>	a b c d	<u>23</u>	a b c d	<u>45</u>	a b c d
<u>2</u>	a b c d	<u>24</u>	a b c d	<u>46</u>	a b c d
<u>3</u>	a b c d	<u>25</u>	a b c d	<u>47</u>	a b c d
<u>4</u>	a b c d	<u>26</u>	a b c d	<u>48</u>	a b c d
<u>5</u>	a b c d	<u>27</u>	a b c d	<u>49</u>	a b c d
<u>6</u>	a b c d	<u>28</u>	a b c d	<u>50</u>	a b c d
<u>7</u>	a b c d	<u>29</u>	a b c d	<u>51</u>	a b c d
<u>8</u>	a b c d	<u>30</u>	a b c d	<u>52</u>	a b c d
<u>9</u>	a b c d	<u>31</u>	a b c d	<u>53</u>	a b c d
<u>10</u>	a b c d	<u>32</u>	a b c d	<u>54</u>	a b c d
<u>11</u>	a b c d	<u>33</u>	a b c d	<u>55</u>	a b c d
<u>12</u>	a b c d	<u>34</u>	a b c d	<u>56</u>	a b c d
<u>13</u>	a b c d	<u>35</u>	a b c d	<u>57</u>	a b c d
<u>14</u>	a b c d	<u>36</u>	a b c d	<u>58</u>	a b c d
<u>15</u>	a b c d	<u>37</u>	a b c d	<u>59</u>	a b c d
<u>16</u>	a b c d	<u>38</u>	a b c d	<u>60</u>	a b c d
<u>17</u>	a b c d	<u>39</u>	a b c d	<u>61</u>	a b c d e
<u>18</u>	a b c d	<u>40</u>	a b c d	<u>62</u>	a b c d
<u>19</u>	a b c d	<u>41</u>	a b c d	<u>63</u>	a b c d
<u>20</u>	a b c d	<u>42</u>	a b c d	<u>64</u>	a b c d
<u>21</u>	a b c d	<u>43</u>	a b c d	<u>65</u>	a b c d
<u>22</u>	a b c d	<u>44</u>	a b c d	<u>66</u>	a b c d

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List each credential held by attendee _____

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To be completed by Gary Klinka www.garyklinka.com Gary's credential link [#70172](#)

Course Password _____ Course ID# 13872 _____

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

Instructor Signature _____