



RESIDENTIAL POOL CONTRACTORS GENERAL TRADE KNOWLEDGE EXAMINATION CONTENT INFORMATION

Revised September 14

The General Trade Knowledge portion of the examination is administered daily in Computer Based Testing (CBT) format. It will consist of 80 equally weighted questions.

The examination will have questions relating to the following content areas and necessary knowledge for each area includes:

- reading and interpreting plans and specifications
- reading and interpreting codes
- basic mathematics (addition, subtraction, multiplication, division, calculations of area and volume, fractions, decimals, percentages, calculating the sides of triangles, square roots, powers of numbers, and solving simple algebraic equations for unknown variables)

You should be prepared to respond to examination questions on any of the content areas listed. Questions asked and content areas tested on previous examinations should not be assumed to be the only possible questions to be asked or content areas to be tested on this examination.

The percentage of questions shown for each content area may vary by as much as plus or minus three (3) percent. Please refer to the Candidate Information Brochure and the Reference List for additional information.

Content Area A **7 ½%** **Pre-Installation and Site Preparation**

- 1. Drawing plans that meet job requirements**
 - knowledge of local ordinances and setback requirements
 - knowledge of survey restrictions
 - knowledge of environmental requirements
 - knowledge of ANSI 5 design criteria
 - knowledge of ANSI 3 design criteria
 - knowledge of system design
 - knowledge of symbols
 - knowledge of abbreviations
 - knowledge of terminology

knowledge of site dimensions
knowledge of scale dimensions
knowledge of soil types

2. Determine appropriate equipment needed for jobs

knowledge of Florida Building Code and any local amendments
knowledge of site conditions
knowledge of availability of utilities
knowledge of subsoil conditions
knowledge of water tables
knowledge of characteristics of gunite, tile, steel, fiberglass, vinyl, concrete piping, and wiring

3. Complying with building department requirements

knowledge of permitting requirements
knowledge of required inspections
knowledge of life safety issues

Content Area B **15%** **Pool and Spa Excavation**

1. Locating underground, above ground and overhead obstructions

knowledge of where to find information
knowledge of job site restrictions
knowledge of site conditions
knowledge of how to identify obstructions
knowledge of when and how to notify appropriate authorities
knowledge of permissible working conditions

2. Excavating or clearing sites

knowledge of staking out excavation
knowledge of determining location of excavation
knowledge of shoring
knowledge of soil conditions
knowledge of invert elevations
knowledge of basic surveying
knowledge of layout methods

knowledge of interpreting plans and specifications
knowledge of surveying and leveling equipment
knowledge of compaction equipment
knowledge of earth moving and excavation equipment

3. Performing site grading

knowledge of elevation requirements
knowledge of basic surveying and leveling techniques
knowledge of surveying and leveling equipment
knowledge of identification of obstructions
knowledge of removal of site debris
knowledge of drainage

4. Determining water tables

knowledge of subsoil conditions
knowledge of augers
knowledge of aquifers
knowledge of drilling equipment and practices

5. Determining soil conditions

knowledge of subsoil conditions
knowledge of excavation
knowledge of sampling
knowledge of soil composition
knowledge of soil testing

6. Performing de-watering, de-mucking and well-pointing

knowledge of dewatering equipment
knowledge of piping requirements
knowledge of soils
knowledge of soil permeability
knowledge of excavation equipment
knowledge of excavating techniques and requirements
knowledge of water table
knowledge of well points
knowledge of drawdown
knowledge of pump requirements and techniques

7. Backfilling and compacting

knowledge of different types of backfill material
knowledge of surveying and leveling equipment
knowledge of surveying and leveling techniques
knowledge of soil properties
knowledge of tamping

knowledge of correct moisture content
knowledge of percent compaction
knowledge of soil density testing techniques
knowledge of calculations to determine the amount of dirt to fill

8. Removing foreign materials and debris

knowledge of hand tools
knowledge of excavation equipment
knowledge of hauling equipment
knowledge of materials disposal requirements
knowledge of environmental standards protection

**Content Area C
Plumbing Work**

12 ½%

1. Installing recirculating lines

knowledge of interpreting plans and specifications
knowledge of piping materials and applications
knowledge of placement
knowledge of associated fittings
knowledge of valve requirements
knowledge of related components

2. Pressure testing recirculating lines

knowledge of theory
knowledge of psi's
knowledge of hook-up and placement
ability to understand test results
knowledge of dangers of pressure plugs
knowledge of pressure testing techniques
knowledge of the dangers of pressurized lines

3. Installing filter equipment

knowledge of filtration requirements
knowledge of manufacturer's specifications
knowledge of type of filters
knowledge of gauges and valves
knowledge of placement of pumps
knowledge of types and capacities of motors

knowledge of flow rates and piping pressures
knowledge of ANSI 7 requirements
knowledge of inlets and outlets

4. Installing pumps

knowledge of filtration requirements
knowledge of types of pumps and pump loads
knowledge of grounding
knowledge of piping techniques and requirements
knowledge of pressures and flow requirements
knowledge of manufacturer's specifications
knowledge of hydraulics

5. Installing skimmers

knowledge of filtration requirements
knowledge of types of skimmers
knowledge of skimmer housings
knowledge of strainer baskets
knowledge of weirs and valves
knowledge of vacuum cleaning connections
knowledge of flow rates, pressures, and overflow systems

6. Installing solar heaters

knowledge of solar heating requirements and practices
knowledge of roof penetrations
knowledge of solar collectors
knowledge of piping techniques and requirements
knowledge of pipe fittings
knowledge of control requirements
knowledge of pump requirements

7. Installing conventional heaters (gas, heat pump, electric)

knowledge of state and local codes
knowledge of location requirements
knowledge of fire and gas codes
knowledge of sizing and flow rates
knowledge of heat exchangers for gas heaters
knowledge of location of L.P. Gas tanks for gas heaters
knowledge of heat pumps for electric heaters
knowledge of immersion elements for electric heaters
knowledge of manufacturer's specifications

8. Installing automatic cleaners

knowledge of piping requirements
knowledge of safety requirements
knowledge of pipe fitting
knowledge of fittings
knowledge of pumps

knowledge of filtration requirements
knowledge of materials
knowledge of manufacturer's specifications
knowledge of processes for automatic feeders

9. Installing automatic feeders

knowledge of piping techniques and requirements
knowledge of pipe fitting requirements
knowledge of pipe fitting
knowledge of pipe materials
knowledge of processes for automatic feeders
knowledge of manufacturer's specifications

10. Sizing pipes

knowledge of hydraulics
knowledge of ANSI 7 requirements
knowledge of pump specifications
knowledge of pump flow rates

Content Area D Electrical Work

5%

1. Determining power line requirements

knowledge of wire size based on amperage
knowledge of size of conduits
knowledge of types of conduits
knowledge of wire type
knowledge of overhead power
knowledge of "call before you dig"
knowledge for determining line sizes

2. Installing electric control panels

knowledge of safety requirements
knowledge of location and clearance requirements
knowledge of electrical grounding requirements
knowledge of sizing breakers

3. Perform bonding procedures

knowledge of safety requirements
knowledge of bonding requirements
knowledge of NEC requirements

4. Perform grounding procedures

knowledge of safety requirements
knowledge of electrical grounding requirements
knowledge of NEC requirements

5. Installing light niches

- knowledge of proper installation requirements (conduit)
- knowledge of safety requirements
- knowledge of types of niches
- knowledge of location and amount of illumination
- knowledge of bonding requirements
- knowledge of manufacturer's specifications
- knowledge of elevation and placement of niche
- knowledge of voltage limitations

6. Installing, replacing and repairing electrical components

- knowledge of local and state codes
- knowledge of automatic timers
- knowledge of lights
- knowledge of electrical connections to chlorinating generators
- knowledge of manufacturer's specifications
- knowledge of scope of work

**Content Area E
Shell Placement**

10%

1. Installing steel reinforcing bars

- knowledge of reinforcing practices and procedures
- knowledge of scale dimensions
- knowledge of measurement requirements

- knowledge of bonding requirements
- knowledge of concrete coverage and rebar clearances

2. Installing fiberglass walls

- knowledge of material properties
- knowledge of specific handling requirements
- knowledge of supports and anchorage
- knowledge of backfilling requirements
- knowledge of surveying and leveling equipment
- knowledge of surveying and leveling techniques
- knowledge of soil properties and angle of repose
- knowledge of excavation techniques
- knowledge of manufacturer's specifications

3. Installing metal walls

- knowledge of material properties

- knowledge of specific handling requirements
- knowledge of supports and anchorage
- knowledge of backfilling requirements
- knowledge of surveying and leveling equipment
- knowledge of surveying and leveling techniques
- knowledge of soil properties and angle of repose
- knowledge of excavation techniques
- knowledge of manufacturer's specifications

4. Installing plastic walls

- knowledge of material properties
- knowledge of specific handling requirements
- knowledge of supports and anchorage
- knowledge of backfilling requirements
- knowledge of surveying and leveling equipment
- knowledge of surveying and leveling techniques
- knowledge of soil properties and angle of repose
- knowledge of excavation techniques
- knowledge of manufacturer's specifications

5. Installing structural polymer walls

- knowledge of material properties
- knowledge of specific handling requirements
- knowledge of supports and anchorage
- knowledge of backfilling requirements
- knowledge of surveying and leveling equipment
- knowledge of surveying and leveling techniques
- knowledge of soil properties and angle of repose
- knowledge of excavation techniques
- knowledge of manufacturer's specifications

6. Testing for leakage in pool and spa shells

- knowledge of measuring elevation differentials
- knowledge of evaporation
- knowledge of testing procedures
- knowledge of rate of loss procedures

7. Mixing pneumatically applied concrete

- knowledge of concrete reinforcement requirements
- knowledge of concrete properties
- knowledge of concrete testing
- knowledge of placement techniques
- knowledge of finishing techniques
- knowledge of pressurized concrete equipment

- 8. Installing precast support pilings**
 knowledge of soils
 knowledge of precast piles
 knowledge of pile driving methods and procedures
 knowledge of engineer's specifications

Content Area F **5%**
Deck Work

- 1. Laying out and forming decks**
 knowledge of surveying and leveling equipment
 knowledge of surveying and leveling techniques
 knowledge of excavation and backfill
 knowledge of drainage requirements
 knowledge of form work
 knowledge of safety requirements
 knowledge of compaction requirements
- 2. Installing wood decks**
 knowledge of pressure treated wood
 knowledge of other wood protection
 knowledge of carpentry
 knowledge of carpentry tools
 knowledge of foundations
 knowledge of piers
 knowledge of connectors
 knowledge of safety requirements
- 3. Installing concrete decks**
 knowledge of concrete properties
 knowledge of concrete reinforcement
 knowledge of concrete placement
 knowledge of concrete finishing
 knowledge of form work
 knowledge of expansion and contraction protection
 knowledge of drainage and slope
 knowledge of deck drains and plumbing
 knowledge of deck finishes
 knowledge of compaction requirements
 knowledge of soil treatments
- 4. Installing masonry type decks (tile, stone, and brick)**
 knowledge of sub-base materials
 knowledge of work requirements
 knowledge of material placement
 knowledge of drainage and slope
 knowledge of deck drains

- knowledge of stabilization
 knowledge of compaction

Content Area G **10%**
Tile, Coping and Trim Work

- 1. Installing tiles**
 knowledge of material properties
 knowledge of specific handling requirements
 knowledge of measurements
 knowledge of measuring equipment
 knowledge of types of grouts and requirements
 knowledge of adhesive requirements
 knowledge of mortar requirements
 knowledge of cleaning
 knowledge of leveling techniques and requirements
 knowledge of architectural effects
 knowledge of manufacturer's specifications
 knowledge of control joints
 knowledge of code requirements
 knowledge of plans and specifications
- 2. Installing masonry trims (brick, stone, and precast coping)**
 knowledge of material properties
 knowledge of specific handling requirements
 knowledge of measurements
 knowledge of measuring equipment
 knowledge of types of grouts and requirements
 knowledge of adhesive requirements
 knowledge of mortar requirements
 knowledge of cleaning
 knowledge of leveling techniques and requirements
 knowledge of architectural effects
 knowledge of mitering
 knowledge of manufacturer's specifications
 knowledge of control joints
 knowledge of code requirements
 knowledge of plans and specifications
- 3. Checking for level placement of materials**
 knowledge of leveling equipment
 knowledge of leveling techniques and requirements
 knowledge of code requirements
 knowledge of plans and specifications

Content Area H
Accessory Work

5%

1. Installing fencing

knowledge of state and local codes
knowledge of location requirements
knowledge of picket spacing
knowledge of safety requirements
knowledge of barrier code and insurance requirements

2. Installing diving boards and diving platforms

knowledge of materials for diving boards
knowledge of installation requirements
knowledge of safety requirements
knowledge of proper placement
knowledge of manufacturer's specifications
knowledge of bonding requirements

3. Installing slides

knowledge of materials for slides
knowledge of installation requirements
knowledge of proper placement
knowledge of safety requirements
knowledge of manufacturer's specifications
knowledge of bonding requirements

4. Installing auxiliary lighting

knowledge of fiber optic lighting
knowledge of low voltage accent lighting
knowledge of manufacturer's specifications
knowledge of proximity location
knowledge of NEC requirements

5. Installing alternate sanitation devices

knowledge of different types of devices
knowledge of manufacturer's specifications
knowledge of installation
knowledge of different device applications
knowledge of scope of work

Content Area I

5%

Interior Surface Preparation and Finishing

1. Performing interior pool and spa clean-outs

knowledge of pool draining procedures
knowledge of possible uplift
knowledge of chemicals
knowledge of cleaning solutions
knowledge of cleaning procedures

knowledge of safety requirements
knowledge of disposal requirements
knowledge of surface adhesion

2. Performing interior pool and spa finishes of concrete pools

knowledge of concrete requirements
knowledge of concrete testing
knowledge of concrete properties
knowledge of finishing and brazing
knowledge of surface adhesion

3. Installing lining in vinyl-lined pools

knowledge of materials
knowledge of methods
knowledge of soils and stabilization
knowledge of retaining walls
knowledge of coping
knowledge of leveling and installing
knowledge of anchoring
knowledge of manufacturer's specifications

Content Area J

5%

Start Up

1. Pre-testing fill water

knowledge of water chemistry
knowledge of testing procedures and requirements
knowledge of reagents
knowledge of saturation
knowledge of pH
knowledge of total alkalinity
knowledge of hardness
knowledge of prefiltering procedures
knowledge of TDS levels

2. Testing filters and filtration

knowledge of pressurizing procedures and requirements
knowledge of turnover rates
knowledge of pumps
knowledge testing procedures
knowledge of manufacturer's specifications

3. Balancing pool water

knowledge of water chemistry
knowledge of testing procedures and requirements
knowledge of solutions
knowledge of reagents

knowledge of saturation
knowledge of pH
knowledge of total alkalinity
knowledge of hardness
knowledge of disinfecting
knowledge of sanitizing
knowledge of safety requirements
knowledge of chemical dangers
knowledge of algae identification

4. Starting pool and spa auxiliary equipment

knowledge of manufacturer's specifications
knowledge of system design
knowledge of system calibration
knowledge of turnover rate

5. Testing heating equipment

knowledge of wiring
knowledge of fuels
knowledge of solar input
knowledge of testing procedures
knowledge of temperature measurement
knowledge of system design
knowledge of exhaust venting
knowledge of manufacturer's specification
knowledge of types of heaters

6. Testing pump

knowledge of testing procedures
knowledge of pump requirements
knowledge of system design
knowledge of hydraulics

7. Performing final pool and spa clean-ups

knowledge of material procedures
knowledge of safety requirements

**Content Area K
Service and Maintenance**

10%

1. Demonstrating pool operation to owners

knowledge of mechanical and hydraulic systems
knowledge of chemical systems
knowledge of general pool care requirements
knowledge of communicating safety requirements
knowledge of equipment
knowledge of communication skills
knowledge of daily reports
knowledge of maintenance procedures

2. Sanitizing pools and spas through chlorination

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of practices of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements
knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements

3. Performing shock treatments or super-chlorinations

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures and techniques
knowledge of chemical balancing
knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements
knowledge of identifying chemical demand
knowledge of algae identification

4. Determining breakpoint chlorinations

knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of practices of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements
knowledge of testing techniques and requirements
knowledge of reagents

knowledge of adjusting techniques and requirements

5. Sanitizing pools and spas through oxidation

knowledge of effects of pool chemicals
knowledge of practices of pool chemicals
knowledge of safety requirements
knowledge of chemical balancing techniques and requirements
knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements

6. Checking accurate turbidity

knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements

7. Testing and adjusting pH values

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements
knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements

8. Testing and adjusting water hardness

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of practices of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements

knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements
knowledge of calcium hardness

9. Testing and adjusting total alkalinity

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements
knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements

10. Testing and adjusting cyanuric acid

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating requirements
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements
knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements
knowledge of effects of cyanuric acid

11. Testing and adjusting metals

knowledge of water chemistry
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of safety requirements
knowledge of dangers of chlorinating agents
knowledge of chlorinating procedures
knowledge of chemical balancing techniques and requirements

knowledge of testing techniques and requirements
knowledge of reagents
knowledge of adjusting techniques and requirements
knowledge of sequestering agents

12. Cleaning D.E. filters by backwashing and jet spraying

knowledge of system design
knowledge of pump requirements
knowledge of flow rates
knowledge of safety requirements
knowledge of testing procedures
knowledge of water clarity
knowledge of gauges
knowledge of drainage
knowledge of valves
knowledge of filter media disposal

13. Backwashing sand filters

knowledge of system design
knowledge of pump requirements
knowledge of flow rates
knowledge of safety requirements
knowledge of testing procedures
knowledge of water clarity
knowledge of gauges
knowledge of drainage
knowledge of valves
knowledge of manufacturer's specifications

14. Using sodium hypochlorite for disinfecting and deck cleaning

knowledge of safety requirements
knowledge of chemical properties
knowledge of mixing procedures
knowledge of chemical effects
knowledge of chemical balancing techniques and requirements
knowledge of storage procedures and requirements

15. Using calcium hypochlorite to sanitize decks and locker rooms

knowledge of safety requirements
knowledge of chemicals
knowledge of chemical properties
knowledge of mixing procedures
knowledge of chemical effects
knowledge of chemical balancing techniques and requirements

knowledge of storage procedures and requirements

16. Using other pool sanitizers (e.g., bromine, iodine, ozone, ultraviolet, silver and electrolytic cells)

knowledge of safety requirements
knowledge of chemicals
knowledge of chemical properties
knowledge of mixing procedures
knowledge of chemical effects
knowledge of chemical balancing techniques and requirements
knowledge of chemical storage procedures and requirements
knowledge of chemical application procedures and requirements

17. Using other pool chemicals (e.g., flocculents, algicides, sequestering agents, degreasers and defoamers)

knowledge of safety requirements
knowledge of chemicals
knowledge of chemical properties
knowledge of mixing procedures
knowledge of filtration requirements
knowledge of filtration media
knowledge of chemical effects
knowledge of chemical balancing techniques and requirements
knowledge of chemical storage procedures and requirements

18. Testing and adjusting water saturation and undersaturation

knowledge of water chemistry
knowledge of pH
knowledge of pool chemicals
knowledge of effects of pool chemicals
knowledge of safety requirements
knowledge of chlorinating techniques and procedures
knowledge of chemical balancing techniques and requirements
knowledge of testing procedures
knowledge of reagents
knowledge of adjusting procedures
knowledge of Langlier Index

19. Identify the effect of chemical balances on staining

knowledge of safety requirements
knowledge of chemicals
knowledge of chemical properties
knowledge of mixing procedures
knowledge of chemical effects
knowledge of storage procedures and requirements

20. Replacing light bulbs and underwater lights

knowledge of different voltage lights
knowledge of proper safety procedures and requirements
knowledge of importance of ground fault interrupter
knowledge of safe wiring and sealing water out
knowledge of material specifications
knowledge of bonding and grounding requirements
knowledge of manufacturer's specifications

21. Utilizing pool blankets and covers

knowledge of materials and types
knowledge of positives and negatives of pool blankets and covers
knowledge of the properties of materials
knowledge of safety requirements
knowledge of installation
knowledge of securing installation
knowledge of chemical balance effects

22. Maintaining and repairing plumbing equipment

knowledge of safety requirements
knowledge of piping requirements
knowledge of fittings
knowledge of pipe fittings
knowledge of piping protection
knowledge of pressure requirements
knowledge of gauges
knowledge of pressure testing
knowledge of flow rates
knowledge of pumps
knowledge of leak detection

23. Maintaining and repairing decks

knowledge of bonding agents for adhesion of new material to old
knowledge of cleaning in preparation for repair
knowledge of safety requirements

knowledge of expansion joints
knowledge of codes
knowledge of maintaining strength of the deck
knowledge of soil conditions
knowledge of compaction
knowledge of concrete placement

24. Maintaining and repairing accessory fixtures

knowledge of safety requirements
knowledge of solar heating
knowledge of conventional heating
knowledge of materials
knowledge of the properties of materials
knowledge of procedures
knowledge of material handling
knowledge of manufacturer's specifications

25. Maintaining and repairing pool shells

knowledge of leak detection
knowledge of leak testing
knowledge of safety requirements
knowledge of materials
knowledge of the properties of materials
knowledge of crack repair procedures
knowledge of recoating procedures

26. Cleaning cartridge filters

knowledge of system design
knowledge of pump requirements
knowledge of flow rates
knowledge of safety requirements
knowledge of testing procedures
knowledge of water clarity
knowledge of gauges
knowledge of drainage
knowledge of valves
knowledge of manufacturer's specifications

27. Performing heater care and maintenance

knowledge of safety requirements
knowledge of testing procedures and requirements
knowledge of system design

- knowledge of system capacity
- knowledge of temperature measurements
- knowledge of effects of temperature
knowledge of changes in temperature

knowledge of effects of water chemistry on heater components
knowledge of pool chemistry

knowledge of gas and electric requirements
knowledge of flow rates

Content Area L
Equipment

10%

1. Using jackhammers

knowledge of safety requirements
knowledge of OSHA requirements
knowledge of equipment characteristics

2. Using saw cutting machines

knowledge of safety requirements
knowledge of OSHA requirements
knowledge of equipment characteristics

3. Using bobcats or backhoes

knowledge of safety requirements
knowledge of OSHA requirements
knowledge of equipment characteristics
knowledge of traffic regulations

4. Using compressors

knowledge of safety requirements
knowledge of OSHA requirements
knowledge of pressure regulators
knowledge of pneumatic tools

5. Using concrete pumps

knowledge of safety requirements
knowledge of OSHA requirements
knowledge of concrete properties
knowledge of concrete procedures
knowledge of concrete testing
knowledge of concrete placement