



# GAS LINE CONTRACTORS GENERAL TRADE KNOWLEDGE EXAMINATION CONTENT INFORMATION

Revised March 2009

The General Trade Knowledge examination will be administered in one session on the morning of the first day of the examination administration. 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** **10%** **General Knowledge**

1. Recognizing different corrosion allowances for gas pipe
2. Identifying codes of acceptable gas piping materials
3. Testing for welding soundness - identifying maximum pressure used in mitered gas piping bends

4. Performing support spacing for gas piping
5. Performing calculations for pipe lengths in bends
6. Performing calculations for pipe setbacks, offsets, run, and travel
7. Performing calculations for area and circumference of piping
8. Performing calculations for equations for linear expansion
9. Performing bending of steel pipe with a mandrel to form angles without cracking the pipe
10. Determining minimum radius bending on polyethylene
11. Performing techniques used in the grounding of gas pipe systems
12. Interpreting engineering drawings
13. Using the metric system
14. Obtaining measurements and recording information for record drawings
15. Complying with Public Service Commission Rules - Code of Federal Regulations, Title 49, Part 192, and Rules of PSC, Chapters 25-12
16. Complying with the Florida Department of Transportation Utility Accommodation Manual - utility location criteria, maintenance of traffic, excavation, and jacking and boring

**Content Area B** 5%  
**Testing and Code Compliance**

1. Recognizing, obtaining, installing and checking required pressure limiting devices for gas pipe systems
2. Selecting the correct regulators for different gas systems
3. Identifying the testing requirements for gas distribution lines and performing the test
4. Identifying the testing requirements for gas transmission lines
5. Recognizing the properties, uses, and testing requirements of polyethylene
6. Identifying the required testing number of field butt welds
7. Selecting the correct CAD welding charges according to sizing parameters
8. Recognizing proper test equipment used for gas piping systems and performing tests using the equipment
9. Recognizing the relationship of operating to test pressures
10. Identifying the different required test duration for gas piping systems and performing the tests
11. Selecting and performing techniques for wrapping joints
12. Recognizing and performing techniques for holiday detection
13. Recognizing and performing techniques for cathodic protection
14. Recognizing and checking compaction testing methods

**Content Area C** 5%  
**Taps and Connections**

1. Fabricating and installing valve insertions
2. Installing pressure line stops
3. Fabricating and installing live connections to existing pipes
4. Identifying requirements for new service lines not in use

**Content Area D** 5%  
**Pigging and Purging**

1. Performing pigging procedures
2. Performing purging procedures

**Content Area E** 5%  
**Maintenance**

1. Recognizing where and how bolt-on leak repair clamps can be used
2. Performing techniques used for gas pipeline repair

**Content Area F** 20%  
**Welding and Fusion**

1. Identifying and performing preferred joining techniques for steel gas piping
2. Performing pipe welding in a horizontal position
3. Performing surface preparation and using the correct electrodes, according to material being welded
4. Performing the correct welding technique for different materials of varying thickness
5. Performing downhill welding
6. Performing uphill welding

7. Identifying the organization responsible for creating codes and standards
8. Identifying the different types of current used in pipe welding
9. Identifying the factors involved in heat distribution and heat dissipation
10. Recognizing the relationship between heat transfer and different metal types
11. Identifying different types of welded pipe fittings
12. Identifying the causes of excess penetration of welds
13. Identifying included angles, beveled angles, root faces, and root openings
14. Recognizing the acceptable misalignment of pipes being welded
15. Recognizing the restrictions in relationship to plastic-metallic pipe joints
16. Performing plastic pipe jointing methods and procedures

**Content Area G** **20%**  
**Safety**

1. Complying with the Federal OSHA requirements, Subpart P
2. Complying with state modifications or additions to OSHA, Subpart P
3. Recognizing and complying with requirements of clearance from other underground structures
4. Complying with state and federal trucking regulations
5. Preventing accidental ignition

**Content Area H** **10%**  
**Excavation**

1. Calculating live and dead loads and their effects on piping
2. Complying with underground gas pipe requirements for casing or bridging
3. Complying with requirements for minimum coverage of steel or polyethylene pipes on private property
4. Performing directional drilling
5. Performing de-watering
6. Performing excavation
7. Performing compaction
8. Testing soil for compaction
9. Performing trench-less technology

**Content Area I** **10%**  
**Equipment**

1. Identifying and using equipment for hot taps
2. Using equipment for gas line construction

**Content Area J** **5%**  
**Materials**

1. Identifying the minimum gas pipe design pressures per temperature range
2. Identifying the default temperature ratings for known gas pipe pressures
3. Determining the minimum longitudinal "E" weld factor for furnace lap welding
4. Complying with required specifications for pipe thickness
5. Identifying the maximum sizes for threaded steel gas pipe

6. Complying with requirements for pipe I.D. and O.D., wall thickness, and materials of gas pipes
7. Identifying maximum operating pressures for different sizes and materials of gas piping
8. Using valves
9. Identifying properties and uses of polyethylene and performing testing of polyethylene pipe
10. Recognizing continuous welded pipe construction
11. Electric fusion welding of polyethylene
12. Recognizing and performing techniques for determining minimum radius bending on polyethylene
13. Recognizing where wrinkle bends are permitted
14. Recognizing restrictions in relationship to plastic-metallic pipe joints
15. Recognizing dissimilar material fusion
16. Handling pipe

**Content Area K**  
**Location and Investigation**

**5%**

1. Recognizing color-coded systems for various types of materials
2. Locating utilities
3. Identifying and locating wire laid with pipe