



ROOFING 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 **20%** **Built-Up Roofs**

- 1. Installation of metal gravel stops**
 - knowledge of placement
 - knowledge of fastening requirements and techniques
 - knowledge of adhesives requirements and techniques

- 2. Performing test cuts**
 - knowledge of test cut requirements and techniques
 - knowledge of when required
 - knowledge of sizes and best method of testing
- 3. Built-up roof surfaces**
 - knowledge of liquid applied coatings
 - knowledge of aggregates
 - knowledge of cap sheets
- 4. Tie-ins for built-up roofs**
 - following a roofing layout
 - measuring for tie-ins
 - using cold adhesives or sprayed materials
- 5. Insulating and ventilating for built-up roofs**
 - mechanically fastening insulation
 - installing multiple layer insulation
 - installing factory-tapered board roof insulation systems
 - installing field-sloped roof fill, crickets roof fill and insulation systems
 - installing foamed in-place insulation
 - determining thermal values of roofing materials
 - knowledge of ventilation requirements
- 6. Installing slate roofs**
 - knowledge of built-up roof penetrations
 - knowledge of requirements for slate underlayment
 - knowledge of nailing requirements
- 7. Roof-over steel decks**
 - knowledge of underlayment
 - knowledge of fastening requirements and techniques
 - knowledge of adhesives requirements and techniques
 - knowledge of weight and dead loads
 - knowledge of flute span capabilities of insulation

- 8. Roof-over concrete decks**
 - knowledge of weights and deadloads
 - knowledge of underlayment requirements
 - knowledge of adhesives requirements and techniques
 - knowledge of fastening requirements and techniques
 - knowledge of deck preparation
- 9. Roof-over insulating concrete**
 - knowledge of weights and deadloads
 - knowledge of fastening requirements and techniques
- 10. Roof-over wood deck**
 - installing rosin-sized sheathing paper
 - knowledge of weights and deadloads
 - knowledge of underlayment requirements
 - knowledge of adhesives requirements and techniques
 - knowledge of fastening requirements and techniques
 - knowledge of deck preparation
- 11. Installing coal tar pitch built-up roofing**
 - knowledge of determining roof pitch
 - knowledge of what materials can be used
 - knowledge of ponding
 - knowledge of roof penetrations
 - knowledge of sloped or tapered insulation requirements
- 12. Installing roofing felts**
 - knowledge of surface preparation and techniques
 - knowledge of temperature requirements
 - knowledge of fastening requirements
- 13. Installing mineral surfaced roofing**
 - knowledge of dead loads
 - knowledge of application temperature
 - knowledge of adhesive types and needs
 - knowledge of fastening
- 14. Installing flashing and counter-flashing for built-up roofs**
 - knowledge of metal flashings
 - knowledge of reinforced membrane flashings
 - knowledge of flashing around penetrations
 - knowledge of crickets and saddle flashings
- 15. Maintenance and repair of built-up roofs**
 - determine roof type

- Content Area B** **20%**
- Shingles and Shakes**
- 1. Selecting appropriate type of shingles**
 - knowledge of types available and length of different type compatibility
 - knowledge of number of bundles per square
 - knowledge of different grades
 - knowledge of exposure requirements
 - knowledge of approximate coverage
 - knowledge of roof deck requirements for application of wood shingles and wood shakes
 - knowledge of fastening requirements and techniques
 - 2. Cutting shingles individually when using a pattern**
 - knowledge of cutting tools
 - 3. Using the straight-up method**
 - knowledge of marking and following bond lines
 - knowledge of shingling around obstructions
 - 4. Using the stair stepping method**
 - knowledge of applying strips of felt
 - knowledge of overlapping measurements
 - 5. Straightening bond lines**
 - knowledge of marking and following bond lines
 - knowledge of even and uneven lines
 - knowledge of shingling around obstructions
 - 6. Applying bond and course lines**
 - knowledge of measurement
 - 7. Installing wood shakes and shingles**
 - knowledge of doubling at all eaves
 - knowledge of starter course placement
 - knowledge of gutter requirements
 - knowledge of trough requirements
 - knowledge of shingle extension
 - knowledge of spacing between adjacent shingles
 - knowledge of nailing and fastening
 - knowledge of attaching hip and ridge shingles
 - knowledge of pre-manufactured hip and ridge unit application
 - knowledge of preparing areas to be shingled
 - knowledge of handling shingles
 - knowledge of roofing felt

- 8. Determining fastener types, placement and length for wood shakes and shingles**
 knowledge of types of fasteners and their application
 knowledge of spacing for different types of shingles
 knowledge of types of nails
 knowledge of size of nails needed and required
- 9. Determining width and grade for wood shakes**
 knowledge of types of grades and when applicable
- 10. Determining shingle and shake exposure**
 knowledge of slope calculations
 knowledge of coverage of one square of shingles based on following weather exposures
 knowledge of types of shingles and shakes and their properties
 knowledge of spacing requirements
- 11. Installing a butt-up reroof**
 knowledge of examination of roofing and insulation
 knowledge of replacing insulation
 knowledge of attaching insulation
 knowledge of selecting new roofing membrane
 knowledge of making changes in wood-blocking heights and additional expansion provisions
 knowledge of sample evaluation cuts
- 12. Installing composite shingles**
 knowledge of adhesive requirements
 knowledge of live loads
 knowledge of cutting
 knowledge of placement
 knowledge of surface preparation requirements
- 13. Tie-ins for shingles and shakes**
 following a roofing layout
 measuring for tie-ins
 using cold adhesives or sprayed materials
- 14. Installing valleys**
 knowledge of lacing shingles
 knowledge of placing shingles appropriately
 knowledge of plastic cement
 knowledge of metal and heavy roofing paper
 knowledge of appropriate pitch
 knowledge of adhesive requirements
 knowledge of fastening requirements and techniques

- knowledge of underlayment
- trimming or dub corners
- verifying and selecting proper materials
- caulking valleys
- waterproofing blind valleys
- connecting valleys
- repairing rusted or cracked wood structures in valleys

- 15. Installing and repairing ridges**
 knowledge of chalking
 knowledge of determining size of nails
 knowledge of adhesives
 knowledge of temperature requirements
 knowledge of tabs
- 16. Installing drip edges**
 knowledge of appropriate types of fasteners
 knowledge of placement
 knowledge of sealants
 knowledge of flashing requirements
 installation of termination bars
- 17. Insulating and ventilating for shingle and shake roofs**
 mechanically fastening insulation
 installing multiple layer insulation
 determining thermal values of roofing materials
 knowledge of ventilation requirements
- 18. Installing flashing and counter-flashing for shingle and shake roofs**
 knowledge of metal flashings
 knowledge of reinforced membrane flashings
 knowledge of flashing around penetrations
 knowledge of crickets and saddle flashings
- 19. Maintenance and repair of shingle and shake roofs**
 determine roof type

Content Area C **10%**
Architectural Metal Roofs

- 1. Installing architectural metal roofs**
 knowledge of fasteners
 knowledge of caulk
 knowledge of adhesives
 knowledge of soldering
 knowledge of flashing
 knowledge of underlayment
 knowledge of wind loads
 use of dissimilar materials

- 2. Tie-ins for architectural metal roofs**
following a roofing layout
measuring for tie-ins
using cold adhesives or sprayed materials
- 3. Installing metal shingles**
knowledge of placement
knowledge of fastening requirements and techniques
knowledge of adhesive requirements
knowledge of sealants
- 4. Insulating and ventilating for architectural metal roofs**
mechanically fastening insulation
installing multiple layer insulation
installing factory-tapered board roof insulation systems
installing field-sloped and cricketed roof fill and insulation systems
installing foamed in-place insulation
determining thermal values of roofing materials
knowledge of ventilation requirements
- 5. Installing flashing and counter-flashing for architectural metal roofs**
knowledge of metal flashings
knowledge of reinforced membrane flashings
knowledge of flashing around penetrations
knowledge of crickets and saddle flashings
- 6. Maintenance and repair of architectural metal roofs**
determine roof type

Content Area D **10%**
Single Ply Systems

- 1. Installing adhesive-applied systems**
knowledge of adhesives and their properties
knowledge of effects of sun
- 2. Installing heat applied systems**
knowledge of heat application equipment
knowledge of application temperatures
- 3. Installing mechanically fastened systems**
knowledge of fastening requirements and techniques
knowledge of sealant requirements and techniques

- 4. Tie-ins for single-ply roofs**
following a roofing layout
measuring for tie-ins
using cold adhesives or sprayed materials
- 5. Determining seaming cement needs**
knowledge of types of seaming cements and their properties
knowledge of application requirements and techniques
knowledge of seaming tapes
- 6. Insulating and ventilating**
mechanically fastening insulation
installing multiple layer insulation
installing factory-tapered board roof insulation systems
installing field-sloped and cricketed roof fill and insulation systems
installing foamed in-place insulation
determining thermal values of roofing materials
knowledge of ventilation requirements
- 7. Installing flashing and counter-flashing**
knowledge of metal flashings
knowledge of reinforced membrane flashings
knowledge of flashing around penetrations
knowledge of crickets and saddle flashings
- 8. Maintenance and repair**
determine roof type

Content Area E **10%**
Modified Roofing Systems

- 1. Installing modified systems**
knowledge of asphalt properties
knowledge of sealants and caulks
knowledge of APP modified
knowledge of SBS modified
- 2. Installing adhesive-applied systems**
knowledge of adhesives and their properties
knowledge of effects of sun
- 3. Installing heat applied systems**
knowledge of heat application equipment
knowledge of application temperatures

- 4. Insulating and ventilating**
mechanically fastening insulation
installing multiple layer insulation
installing factory-tapered board roof insulation systems
installing field-sloped and cricketed roof fill and insulation systems
installing foamed in-place insulation
determining thermal values of roofing materials
knowledge of ventilation requirements
- 5. Installing flashing and counter-flashing**
knowledge of metal flashings
knowledge of reinforced membrane flashings
knowledge of flashing around penetrations
knowledge of crickets and saddle flashings

Content Area F **10%**
Concrete and Tile Roofs

- 1. Loads**
- 2. Bond lines**
- 3. Adhesive requirements**
- 4. Installing flashing and counter-flashing for concrete and tile roofs**
knowledge of metal flashings
knowledge of reinforced membrane flashings
knowledge of flashing around penetrations
knowledge of crickets and saddle flashings
- 5. Under tile ventilation requirements**
- 6. Plastic cement application requirements**
- 7. Mortar applications**
- 8. Purlins**
- 9. Nail and fastening requirements**
- 10. Ridge and hip tiles**
- 11. Gables and perimeters**
- 12. Tile over sheet metal**
- 13. Tile locks**
- 14. Foam**

15. Underlayment

- 16. Insulating and ventilating for concrete and tile roofs**
mechanically fastening insulation
installing multiple layer insulation
installing factory-tapered board roof insulation systems
installing field-sloped and cricketed roof fill and insulation systems
installing foamed in-place insulation
determining thermal values of roofing materials
knowledge of ventilation requirements

- 17. Tie-ins for concrete and tile roofs**
following a roofing layout
measuring for tie-ins
using cold adhesives or sprayed materials

- 18. Maintenance and repair of concrete and tile roofs**
determine roof type

Content Area G **5%**
Membrane Waterproofing

- 1. Installation of walls below grade**
knowledge of materials
knowledge of primers
different membrane types
hydrostatic pressure
knowledge of hot and cold application methods
knowledge of when membrane waterproofing is required
- 2. Installation of floor slabs**
knowledge of materials
knowledge of primers
different membrane types
hydrostatic pressure
knowledge of hot and cold application methods
knowledge of when membrane waterproofing is required

Content Area H 5%
Drain and Gutters

- 1. Verifying scupper overflow requirements**
knowledge of water flow rates
- 2. Determining gutter and downspout requirements**
knowledge of water flow rates
- 3. Installing gutters and downspouts**
knowledge of strapping
knowledge of fastening requirements and techniques
knowledge of size requirements
- 4. Installing leader and conductor heads**
knowledge of fastening requirements and techniques
knowledge of caulk and sealants
knowledge of size requirements

Content Area I 10%
Equipment and Safety

- 1. Using ladders**
knowledge of safety requirements
knowledge of OSHA requirements
- 2. Using scaffolds**
knowledge of safety requirements
knowledge of OSHA requirements
- 3. Using hoists (manual and automatic)**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of load capabilities
- 4. Using lift trucks**
knowledge of safety requirements
knowledge of OSHA requirements
- 5. Using kettles**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of tar temperature
knowledge of temperature gauges and automatic controls
knowledge of starting procedures

- 6. Using heat welding equipment**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of torches
knowledge of hot air
- 7. Using manual lifts**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of load capabilities
- 8. Using pump lifts**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of dynamic heads
knowledge of mechanical joints
- 9. Using roof jacks for steep pitch**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of proper anchoring procedures
- 10. Using spudding machines**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of aggregate disposal
- 11. Using compressors**
knowledge of safety requirements
knowledge of OSHA requirements
- 12. Using pneumatic equipment**
knowledge of safety requirements
knowledge of OSHA requirements
knowledge of pressure requirements
knowledge of fastening requirements and techniques