



# ROOFING 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** **15%** **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 spray polyurethane foam  
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, cricketed roof fill and insulation systems  
installing adhered in-place insulation (e.g., foam, epoxy)  
determining thermal values of roofing materials  
knowledge of ventilation requirements for built-up roofs

### **6. Roof assembly installed over steel decks**

knowledge of underlayment  
knowledge of fastening requirements and techniques  
knowledge of weight and dead loads  
knowledge of flute span capabilities of insulation

### **7. Roof assembly installed 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

**8. Roof assembly installed over insulating concrete**

knowledge of weights and deadloads  
knowledge of fastening requirements and techniques

**9. Roof assembly installed 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

**10. Installing coal tar pitch built-up roofing**

knowledge of determining roof slope  
knowledge of what materials can be used with coal tar  
knowledge of ponding  
knowledge of roof penetrations  
knowledge of sloped or tapered insulation requirements

**11. Installing roofing felts**

knowledge of surface preparation and techniques  
knowledge of temperature requirements  
knowledge of fastening requirements

**12. 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

**13. Maintenance and repair of built-up roofs**

determine roof type

**Content Area B  
Shingles and Shakes**

**15%**

**1. Selecting appropriate type of shingles**

knowledge of types available,  
knowledge of different types and compatibility  
knowledge of number of bundles per square  
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  
knowledge of measuring for cutting

**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 underlayment  
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 penetrations or obstructions

**6. Installing wood shakes**

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 underlayments

**7. 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

**8. Determining width and grade for wood shakes**

knowledge of types of grades and when applicable

**9. 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

**10. Installing composite shingles**

knowledge of adhesive requirements  
knowledge of live loads  
knowledge of cutting  
knowledge of placement  
knowledge of roof recover requirements  
knowledge of surface preparation requirements

**11. Tie-ins for shingles and shakes**

following a roofing layout  
methods and materials for tie-ins

**12. Installing valleys**

knowledge of methods of installation  
knowledge of placing shingles appropriately  
knowledge of plastic cement  
knowledge of valley underlayments  
knowledge of adhesive requirements  
knowledge of fastening requirements and techniques  
knowledge of underlayment  
trimming or dub corners  
verifying and selecting proper materials  
waterproofing blind/dead valleys  
connecting valleys

**13. Installing and repairing ridges**

knowledge of alignment  
knowledge of determining size of nails/attachments  
knowledge of adhesives  
knowledge of temperature requirements  
knowledge of tabs

**14. Installing drip edges**

knowledge of appropriate types of fasteners  
knowledge of placement  
knowledge of sealants  
knowledge of flashing requirements

**15. Insulating and ventilating for shingle and shake roofs**

mechanically fastening insulation  
installing insulation  
determining thermal values of roofing materials

knowledge of ventilation requirements for shingle and shake roofs

**16. Installing flashing and counter-flashing for shingle and shake roofs**

knowledge of metal flashings/compatibility  
knowledge of reinforced membrane flashings  
knowledge of flashing around penetrations  
knowledge of crickets and saddle flashings

**17. Maintenance and repair of shingle and shake roofs**

determine roof assembly and condition  
knowledge of leak detection

**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 metal flashings

**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  
determining thermal values of roofing materials  
knowledge of ventilation requirements for architectural metal roofs

**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 assembly and condition  
knowledge of leak detection

**Content Area D  
Single Ply Systems**

**15%**

**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  
methods and materials for Tie-ins

**5. Determining seaming needs**

knowledge of types of seaming adhesive and their properties  
knowledge of application requirements and techniques  
knowledge of seaming tapes  
knowledge of heat seaming methods

**6. Insulating and ventilating**

installing insulation  
installing factory-tapered board roof insulation systems  
installing field-sloped and cricketed roof fill and insulation systems  
determining thermal values of roofing materials  
knowledge of ventilation requirements for single ply roofs

**7. Installing flashing and counter-flashing**

knowledge of metal flashings  
knowledge of supported and unsupported membrane flashings  
knowledge of flashing around penetrations  
knowledge of crickets and saddle flashings

**8. Maintenance and repair**

determine roof assembly and condition  
knowledge of leak detection

**Content Area E  
Modified Roofing Systems**

**15%**

**1. Installing modified systems**

knowledge of asphalt properties  
knowledge of sealants and caulks  
knowledge of APP modified  
knowledge of SBS modified  
knowledge of SA modified

**2. Installing adhesive-applied systems**

knowledge of adhesives and their properties  
knowledge of effects of sun  
knowledge of application methods

**3. Installing heat applied systems**

knowledge of heat application equipment  
knowledge of application temperatures

**4. Insulating and ventilating**

installing insulation  
installing factory-tapered board roof insulation systems  
installing field-sloped and cricketed roof fill and insulation systems  
determining thermal values of roofing materials  
knowledge of ventilation requirements for modified roofing systems

**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  
Concrete and Clay Tile Roofs**

**10%**

**1. Loads**

**2. Roof Layout 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 drainage requirements**
- 6. Plastic cement application requirements**
- 7. Mortar applications**
- 8. Battens**
- 9. Fastening requirements**
- 10. Ridge and hip tiles**
- 11. Gables and perimeters**
- 12. Foam**
- 13. Underlayment**
- 14. Insulating and ventilating for concrete and clay tile roofs**  
 mechanically fastening insulation  
 determining thermal values of roofing materials  
 knowledge of ventilation requirements for concrete and clay tile roofs
- 15. Tie-ins for concrete and tile roofs**  
 following a roofing layout  
 measuring for tie-ins  
 using metal flashings
- 16. Maintenance and repair of concrete and tile roofs**  
 determine roof assembly and condition  
 knowledge of leak detection

**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  
 knowledge of load capabilities

- 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
  
- 13. Fall Protection**
  - Knowledge of safety requirements
  - Knowledge of OSHA requirements