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 polyurethanic 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 15%
Shingles and Shakes

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 15%
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
   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 15%
Modified Roofing Systems

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 10%
Concrete and Clay Tile Roofs

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