MASONRY NYS

PURPOSE
To evaluate each contestant’s preparation for employment and to recognize outstanding students for excellence and professionalism in the field of masonry.

ELIGIBILITY
Open to active SkillsUSA members enrolled in programs with masonry or bricklaying as the occupational objective.

CLOTHING REQUIREMENTS
Contest Specific – Construction
- White crew neck short-sleeved T-shirt
- Work pants or jeans,
- Leather or steel-toed work shoes.
- Hair must be contained.
- Safety glasses with side shields or goggles, (Prescription glasses can be used only if they are equipped with side shields approved by OSHA(Z-87). If not, they must be covered with goggles.)

Note: Contestants must wear their official contest clothing to the contest orientation meeting. Also bring #2 pencil, resume, and safety assurance form

EQUIPMENT AND MATERIALS
1. Supplied by the technical committee:
   a. Tenders
   b. Hose
   c. Three 55-gallon water drums
   d. Mortar pans, boards, pails, and wheelbarrows
   e. Hoes
   f. Square-nosed, short-handled shovels
   g. Sand
   h. Masonry mix or ready-mixed mortar
   i. Resin paper or suitable area covering

2. Supplied by the contestant:
   a. One trowel
   b. Two levels (24” and 48”)
   c. One “S” jointer
   d. Long jointer
   e. One brick hammer
   f. Two 6-foot folding rules (one modular, one standard)
   g. One carrying bag
   h. One pencil
   i. One square
   j. One brush
   k. One brick chisel
   l. Line and line blocks
   m. All competitors must create a one-page résumé and submit a hard copy to the technical committee chair at orientation. Failure to do so will result in a 10-point penalty.

“Note: Your resume may be judged as part of your contest” Check the Contest Guidelines and/or the updates page on the NYS SkillsUSA Web site: http://www.nysskillsusa.org

SCOPE OF THE CONTEST
The contest is defined by industry standards as determined by the SkillsUSA Championships technical committee comprised of the Arizona Masonry Contractors Association, Bon Tool Co., Brick Industry Association, Brick Industry Association SE Region, E/Z Grout Corp., Hanley-Wood LLC, Marshalltown Co., Mason Contractors Association of America, Masonry Institute of Tennessee, National Concrete Masonry Association and SPEC MIX Inc.

Knowledge Performance
The contest will include a written knowledge exam assessing mastery of the knowledge of brick masonry techniques including but not limited to: safety; identification and usage of hand tools, power tools, measuring tools and equipment; and blueprint reading.

Skill Performance
The contest will include a skills performance demonstration that will assess the ability of the contestant to safely construct a composite brick and block project.
Contest Guidelines
1. Contestants will construct a project or wall system using brick or brick and block, according to project specifications and drawings, within an allotted period of time.
2. The project will include components of the most frequently used details in residential construction. In addition, the assessment will also include the vital elements of quality workmanship.

Standards and Competencies
*Considered essential competencies
** Should be mastered at the journeyman level
All other items are considered supplemental.

M 1.0 — Practice safe brick and masonry techniques according to industry standards as set forth by the SkillsUSA technical committee
1.1 *Choose proper tools and materials
1.2 *Perform work in a reasonable amount of time as determined by the instructor and/or industry standards
1.3 **Lay up masonry products in an accurate and professional manner
1.4 *Load and unload materials as directed
1.5 *Clean up work areas properly and thoroughly

M 2.0 — Model safety standards according to and following OSHA regulations
2.1 *Demonstrate appropriate safety precautions when performing all tasks
2.2 *Demonstrate awareness of potential hazards when performing all tasks
2.3 *Accept responsibility for the safety of other workers
2.4 *Keep work areas neat and organized
2.5 *Wear proper safety equipment and clothing
2.6 Follow prescribed OSHA standards

M 3.0 — Use hand tools and equipment according to industry standards as set forth by the SkillsUSA technical committee
3.1 *Cut masonry safely around others
3.2 *Place mortar cautiously in the mortar pan or on the mortar board
3.3 *Keep tools out of the paths of other people working on the job
3.4 *Handle tools properly

M 4.0 — *Identify and use basic hand tools used in brick masonry according to industry standards as set forth by the SkillsUSA technical committee
4.1 *Demonstrate an understanding of the specific uses of each hand tool
4.2 *Practice the safety rules for each hand tool
4.3 *Identify quality tools
4.4 *Store and care for hand tools

M 5.0 — Use measuring tools according to industry standards as set forth by the SkillsUSA technical committee
5.1 Use and maintain a modular ruler and a spacing ruler
5.2 Set and use a story pole
5.3 Power tool identification and usage

M 6.0 — Identify and use brick masonry power tools according to industry standards as set forth by the SkillsUSA technical committee
6.1 *Demonstrate the specific uses of each power tool
6.2 *Practice the safety rules for each power tool
6.3 Maintain power tools
6.4 *Set up power tools correctly

M 7.0 — Use equipment according to industry standards as set forth by the SkillsUSA technical committee
7.1 *Identify equipment generally used in brick masonry
7.2 Correctly use each piece of equipment
7.3 Store, maintain and repair all equipment
7.4 Inspect, assemble and disassemble rigging and scaffolding properly

M 8.0 — Use masonry levels according to industry standards as set forth by the SkillsUSA technical committee
8.1 **Use a 24” and 48” level for plumbing and leveling
8.2 *Care for and maintain a level

M 9.0 — Possess an appropriate knowledge of the fundamental theories in brick masonry
9.1 Demonstrate knowledge of trade terminology
9.1.1 **Identify terms used in brick masonry
9.1.2 **Incorporate trade terminology into oral communication relating to masonry tasks
9.2 Demonstrate knowledge of basic math
9.2.1 Add, subtract, multiply and divide with whole numbers, decimals and fractions
9.2.2 Figure proportions to mix masonry materials according to specifications
9.2.3 Compute percentages to estimate and determine material requirements, work performed, schedules and costs
9.2.4 Express answers relative to the trade

9.3 Read blueprints
9.3.1 Read basic drawings and sketches and understand the information contained in them
9.3.2 Know the meanings of basic architectural symbols and abbreviations
9.3.3 Use a builder’s level relative to a benchmark

M 10.0 — Use materials and methods according to industry standards as set forth by the SkillsUSA technical committee
10.1 Use brick masonry materials with accuracy
10.1.1 Arrange masonry materials for efficient use
10.1.2 Place mortar pans properly
10.1.3 Temper or shake-up mortar with proper shovels
10.2 Use hod-carrying
10.2.1 Arrange masonry materials for efficient use
10.2.2 Place mortar pans properly
10.2.3 Temper or shake-up mortar with proper shovels
10.3 Use trowels properly
10.3.1 Manipulate a trowel properly
10.3.2 Cut and roll, and cut and cup mortar to load trowel properly
10.3.3 Spread and furrow mortar properly

M 11.0 — Prepare mortar according to industry standards as set forth by the SkillsUSA technical committee
11.1 Follow correct safety practices when mixing mortar
11.2 Proportion mortar ingredients for specific mixes
11.3 Mix mortar manually with hoe and mortar box
11.4 Mix mortar with a mortar mixer

M 12.0 — Demonstrate bonding methods according to industry standards as set forth by the SkillsUSA technical committee
12.1 Possess knowledge of different types of bonding used in masonry construction
12.2 Lay out bond
12.3 Determine coursing

M 13.0 — Use tool and point joints according to industry standards as set forth by the SkillsUSA technical committee
13.1 Use tool concave joints
13.2 Use a tool rake, weather, V-jointer, grapevine and struck joints
13.3 Perform cut/rough joints
13.4 Tuck-point a wall properly
13.5 Brush and touch up a wall

M 14.0 — Clean brick and structural tile according to industry standards as set forth by the SkillsUSA technical committee
14.1 Follow correct procedures for keeping masonry work clean
14.2 Follow correct procedures in cleaning brick and structural tile
14.3 Follow correct procedures for rubbing and tuck pointing concrete block and slag block
14.4 Clean and tuck-point stonework

M 15.0 — Lay brick and blocks according to industry standards as set forth by the SkillsUSA technical committee
15.1 Lay straight brick wall
15.1.1 Lay brick at the rate of 75–100 bricks per hour
15.1.2 Attach a line block and line pins to a wall
15.1.3 Set a trig
15.1.4 Lay brick to a line while holding bond
15.1.5 Throw a full head joint
15.2 Lay straight block wall
15.2.1 Spread bed joints and throw on full head joints for block units
15.3 Lay the block corner
15.3.1 Lay out a wall in preparation for building a block corner
15.3.2 Install wire reinforcements in bed joints
15.3.3 Build a block corner to a specified height
15.4 Lay brick veneer wall
  15.4.1 Determine type of brick to be used
  15.4.2 *Bond the wall
  15.4.3 *Scale each course
  15.4.4 *Lay brick in mortar to scale
  15.4.5 *Secure wall with ties at desired intervals
  15.4.6 *Point and joint the wall

15.5 Lay brick masonry cavity wall
  15.5.1 *Determine width of cavity and type of brick to be used
  15.5.2 *Construct components of the wall in the proper sequence
  15.5.3 *Spread mortar to achieve the required bond without getting mortar into the cavity
  15.5.4 **Install wall ties that join the exterior and interior wythes together into a single cavity wall
  15.5.5 **Install flashings and construct weep holes in a manner that permits effective drainage of moisture from cavity
  15.5.6 **Construct and maintain the cavity during construction so that the air space provides insulation

15.6 Lay single Wythe brick (load-bearing wall using units that are a minimum of 5” wide)
  15.6.1 Determine type of brick to be used
  15.6.2 *Bond the wall
  15.6.3 *Scale each course
  15.6.4 *Lay brick in mortar to scale
  15.6.5 **Secure wall with ties at desired intervals
  15.6.6 *Point and joint the wall

15.7 Lay a brick and block composite wall
  15.7.1 Determine type of brick and block to be used
  15.7.2 *Bond the wall
  15.7.3 *Scale each course
  15.7.4 *Lay brick and block in mortar to scale
  15.7.5 *Secure wall with ties at desired intervals
  15.7.6 *Point and joint the wall

M 16.0 — Construct fireplaces and chimneys according to industry standards as set forth by the SkillsUSA technical committee
  16.1 Identify various components of a fireplace
  16.2 Build a fireplace according to plans
  16.3 Identify various components of a chimney
  16.4 Build a one-flue chimney from given plans

M 17.0 — Construct arches, columns and piers according to industry standards as set forth by the SkillsUSA technical committee
  17.1 Demonstrate knowledge of architectural features including aesthetic trims, course designs, period and antique applications
  17.2 Construct an arch using given plans
  17.3 Construct a column using given plans
  17.4 Construct a pier using given plans

M 18.0 — Lay floors, pavers and stairs according to industry standards as set forth by the SkillsUSA technical committee
  18.1 Lay floors according to given plans
  18.2 Lay pavers according to given plans
  18.3 Lay stairs according to given plans
  18.4 Concrete work

M 19.0 — Prepare footers according to industry standards as set forth by the SkillsUSA technical committee
  19.1 Lay out footings properly
  19.2 Place rebar properly
  19.3 Place and rough finish concrete properly

M 20.0 — Lay out and establish foundations according to industry standards as set forth by the SkillsUSA technical committee
  20.1 Lay out and establish grades for foundation
  20.2 *Establish corners and lay out concrete block according to a specific bonding plan
  20.3 Lay foundation wall to joist and brick shelf height
  20.4 Waterproof foundation wall
  20.5 *Install flashing, anchor bolts, termite shield and weep hole