



11th TERRITORIAL SKILLS COMPETITION - SCOPE DOCUMENT

15 – PLUMBING Integrated Level

PURPOSE OF THE CHALLENGE

DURATION: 6 HOURS

To assess the contestant's knowledge and skills in the installation of a plumbing system with high regard to the aspects of quality workmanship and accuracy of work within a specified time frame.

SKILLS AND KNOWLEDGE TO BE TESTED

- Applying mathematical concepts involving parallel, 60, 45, and 22 1/2 offsets in piping systems
- Interpreting and applying the blueprint specifications
- Assembling of various piping systems.
- Assembly of pipe and fittings
- Steel threaded
- Copper – hard and soft solder
- ABS and PVC Plastic Solvent Weld
- Bending of copper pipe using mechanical benders (rigid model 310/31mm. Cat. # 36962)
- Apply safe work practices

JUDGING CRITERIA

Mathematical problem solving, safe work practices, proper use of tools, correct joinery techniques, blueprint and/ or specification interpretation ability and a strong positive work ethic.

EQUIPMENT, TOOLS, SUPPLIES, AND CLOTHING

Supplied by Competitor:

- The contestant must supply his or her own hand tools, pocket calculators and a measuring tape in millimeters (25 mm wide recommended)

Tool list:

- Pocket calculator
- Rigid #756 8-inch standard utility pliers or equivalent
- Rigid 12 inch pipe wrench
- 8-inch vise-grip or equivalent
- Rigid #390M 9-inch level or equivalent
- Rigid #624 24-inch level or equivalent
- Rigid 14 inch pipe wrench
- Lighter for welding torch
- Deburring tools
- Rigid #1012 10-inch or 12-inch metal saw with spare blades, or equivalent
- Rigid #1205 PVC pipe saw or equivalent
- Assorted adjustable wrenches (8" and 12" recommended)
- Pipe cutters for 1/2" to 3/4" diameter copper pipe
- Rigid #154P pipe cutters for 1 1/2" to 4" plastic pipes, or equivalent

- Rigid #101 mini pipe cutter or equivalent
- Measuring tape in millimeters (1" wide recommended)
- Cordless drill (2-battery) with assorted bits and drills (Robertson, blade and Phillips)
- Multi-tip screwdriver
- 16-ounce carpenter's hammer or equivalent
- Plumb line.
- Pencil
- 1-meter metric rule (metal)
- Small Square
- Utility knife

Supplied by Committee:

- Pipe threaders
- Tripod
- Rigid model 310/316 mm tube bender
- Soldering torches
- Adhesives
- Teflon
- Threading paste
- Soldering materials, paste, etc. are provided.
- All workstations will be supplied with the required materials including paper and pencil

SAFETY REQUIREMENTS

Contestants must wear appropriate clothing and personal protective equipment; safety boots, safety glasses, hearing protection and gloves. The contestant must address the dangers of long hair, jewelry, etc.

POINT BREAKDOWN / 100 TOTAL

Accuracy of Installation	Approximately	50%
Quality of Workmanship	Approximately	30%
Piping Pressure Test	Approximately	20%

- Full marks for dimension within 2mm
- Half marks for dimension within 3 to 4 mm
- Point deduction per material request 10 points
- All dimensions shall be in millimeters
- All dimensions will be taken from the designated centerline and benchmark
- Completion time will be utilized for a tiebreaker

TECHNICAL COMMITTEE MEMBERS - JUDGES

Bill Aho, Tech Chair

Central Mechanical Systems, Yellowknife