

SCOPE DOCUMENT	
Competition Year	2025
Competition Location	Abbotsford Tradex
Trade Number	14
Trade Name	Sheet Metal Worker
Level	Post Secondary

1. Introduction

1.1 Purpose of the Challenge

- To enable apprentices to demonstrate skills working with sheet metal

1.2 Duration of contest

- 8 Hours

1.3 Skills and Knowledge to be tested

- Sheet Metal layout and fabrication skills

2.0 CONTEST DESCRIPTION

2.1 List of documents produced and timeline for when competitors have access to the documents

- Orthographic and Pictorial drawing of the project
- To be available at least 3 months before contest start date

2.2 Tasks that may be performed during the contest

2.2.1 Layout skills

- Triangulation to develop the pattern from given plan or elevation view
 - Develop Plan view from given Elevation view
 - Develop Elevation view from given Plan view

- Radial Line Development
 - Square, round, or polygonal rain caps
 - Truncated cones
 - Roof jacks
- Parallel Line Development
 - T Branches
 - Round elbows and offsets (Non reducing except for BE / SE)
- Rectangular Duct Fittings
 - Offsets
 - Elbows
 - Y Branches
 - Take Offs

2.2.2 Methods of fastening and Joining

- Riveting
 - Blind
 - Solid
- Sheet Metal Screws
- Nuts and Bolts
- Welding
 - SMAW
 - GMAW
- Groove seam
- Single and double seams
- Hammerlock
- BE – SE slip
- Pittsburgh – Formed in handbrake
- Slip and Drive
- Standing T or CPR
- Elbow seam
- Wired edge

3. Equipment, Material and Clothing

3.1 Equipment and material provided by BC Skills (Items to be donated or borrowed from vocational schools or contractors)

- Welding machine
 - Capable of GMAW with .030 or .023 wire and Argon/CO2 mix gas
 - Capable of SMAW 1/8” or 3/32” 7018 or 6013 rods

- Welding curtains
- Flat steel table for welding and grinding
- Welding gear
 - Helmets (1 per contestant)
 - Gloves (1 set per contestant)
 - Jacket (1) shared
- Face Shields (At least 2)
- Scrap metal bin
- Brooms (2 req)
- 4-foot box and pan brake (at least 1)
- 3-foot treadle shear
- Stakes
 - Blowhorn (2)
 - Hatchet (2)
 - Bevel edge square (2)
 - Double Seaming (2)
 - Hollow mandrel (2)
 - Bench plates and stands (2)
- Rotary Machines
 - Deep throat machines (3) c/w Burring, Elbowing, Turning, Wiring, Bead and Crimping
 - Easy edger
- Forming rolls
 - 36" (2)
- Hand groovers – all sizes and at least (2) of each
- Rivet sets (4)
 - Size to match project rivets
 - 1 ½ pound tinner's rivets
- Pop Rivet guns (3)
 - #42, #44-, or #46-blind rivets
- Cordless Drills (3)
 - Assorted chucks for screws
 - #8 x ½" self-drilling screws if applicable
 - #10 x ¾" TEK screws if applicable
- 3-foot x 6-foot work tables for contestants (1 per competitor)
- 120v power bar (1 per competitor)
- Bench Vise
- 30" bar folders (2)
- 4 ½" angle grinders with sanding and backing pads (2)
- Unishears or equivalent – (2)
- Beverly Shear
- Framing squares (1 per competitor)
- Steel Welding Coupons
 - 12 gage CRS – 2" x 8" (4 per contestant)

- 16 gage CRS – 2” x 8” (4 per contestant)
- Copper and Brass
 - Flat stock – enough for (2) for every contestant
- Polish, rags, gloves for polishing project

3.2 Equipment and material provided by the competitor

- Screwdriver(s)
- Aviation snips – left and right
- Combination snips
- Dividers
- Trammel points
- Marking gage
- Tape measure
- Hand seamers – Folding pliers
- C clamp vice grips
- Standard vice grips
- Flat file
- Half round file
- 12” rule
- Center punch
- Scratch awl
- Mallet
- Body hammer
- Tinnerns hammer
- Protractor
- Adjustable Wrench
- Hacksaw
- Combination square

These hand tools are recommended as a basic set. The competitor may augment this list but certain specialized tools or other products may be subject to approval by the committee.

4. SAFETY REQUIREMENTS

4.1 List of required PPE provided by competitors

- Proper work clothing and attire as per WBC regulations
 - Steel toe boots
 - Pants or coveralls

- Fire resistant shirt – long or short sleeve cotton (No polyester)
- Long hair tied back
- Safety glasses – You may bring your own, but a basic pair is provided
- Hearing protection – You may bring your own, but a basic pair is provided
- Welding Helmets – You may bring your own, but a basic one is provided
- Welding gloves – You may bring your own, but a basic pair is provided
- Welding jackets - – You may bring your own, but a basic one is provided

4.2 List of required PPE provided by BC Skills

- Safety glasses (may be provided by BC Skills)
- Hearing protection – foam ear plugs
- Face shields
- Welding Helmets
- Welding gloves
- Welding jackets

5. ASSESSMENT

5.1 Point breakdown for the Layout portion of the contest

- A 10-point penalty will be applied if a competitor requests a 2nd copy of the drawing

Pattern: Accuracy and Completeness	40 Points
Plan View: Accuracy and Completeness	20 Points
Elevation View: Accuracy and Completeness	10 Points
Neatness:	10 points
Total:	80 points

5.2 Point breakdown for the shop portion of the competition.

- A 10-point penalty will be applied if a competitor requests an extra piece of material

Wired Edge	25 Points
Double Seam	25 Points
Groove Seam	15 Points
Rivets	10 Points
Forming of Body	10 Points
Finished Appearance	15 Points
Total:	100 Points

5.3 Point breakdown for the welding portion of the competition.

Welding	20 Points
Total:	20 Points

6. ADDITIONAL INFORMATION

6.1 Ties.

- No ties are allowed
- In the event of a tie, the competitor with the fastest time on the shop project will be placed higher in the ranking

6.2 Competition Rules

- Please refer to the competition rules of the BC Skills Canada Provincial Competition

7. BC TECHNICAL COMMITTEE MEMBERS

Trade School	Name	Email
SMWTCS Chair	Jake LeBlanc	jake@smwtcs.ca
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