



CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

# INDUSTRIAL MECHANIC/MILLWRIGHT MECANICIEN-MONTEUR INDUSTRIEL

POST-SECONDARY /  
NIVEAU POSTSECONDAIRE

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## **1 THE ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY**

SCC is currently working with Employment and Social Development Canada (ESDC) in order to bring awareness to the importance of Essential Skills that are absolutely crucial for success in the workforce. Part of this ongoing initiative requires the integration and identification of Essential Skills in contest descriptions, projects, and project documents. The next phase and very important aspect of our Essential Skills (ES) initiative is to provide an ES report card to each competitor at the Skills Canada National Competition. The purpose of the ES report card is to inform the competitor about their current level of essential skills based on their competition scores. With this knowledge, the competitor will be made aware which essential skill may require improvement. Full implementation is expected in the 2017 Skills Canada National Competition.

The following 9 skills have been identified and validated as key essential skills for the workplace in the legend below:

*<sup>1</sup>Numeracy, <sup>2</sup>Oral Communication, <sup>3</sup>Working with Others, <sup>4</sup>Continuous Learning, <sup>5</sup>Reading Text, <sup>6</sup>Writing, <sup>7</sup>Thinking, <sup>8</sup>Document Use, <sup>9</sup>Digital*

These essential skills have been identified with in section 2.4 and/or 3.2 of your Contest Description. The top three Essential Skills for your area of competition have been identified on your Project and all other supporting project documents.

## **2 CONTEST INTRODUCTION**

**2.1** Description of the associated work role(s) or occupation(s).

<http://skillscompetencescanada.com/en/careers/manufacturingengineering/industrial-mechanics-millwright/>

**2.2** Purpose of the Challenge.

To test the knowledge and skills of each competitor in the areas of: blueprint reading, precision hand layout, hand tools, fitting skills, fabrication, welding, machining (lathe), fluid power (pneumatics) and alignment (laser).

**2.3** Duration of contest.

10 hours

**2.4** Skills and Knowledge to be tested.

Mark breakdown: 100% practical.

### 3 CONTEST DESCRIPTION

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

| DOCUMENT     | DATE OF DISTRIBUTION VIA WEBSITE |
|--------------|----------------------------------|
| Test project | January, 2017                    |

3.2 Tasks that will be performed during the contest

- Perform hand tool operations
- Read and interpret blueprints, schematics (pneumatics and welding)<sup>8</sup>
- Create, draw and build a pneumatic circuit to perform a required task<sup>7</sup>
- Perform and demonstrate the required skills to fabricate a machine guard (MIG welding and Plasma cutting)
- Use a Lathe to produce a machine part (parallel turning, taper turning, hand thread internal and external threads) to required tolerances ( $\pm 0.001$ )<sup>1</sup>
- Perform a Laser Alignment including a Thermal Growth Offset<sup>8</sup>
- Knowledge of Imperial measurement and ANSI symbols required<sup>1</sup>
- All competitors will be required to sign a declaration stating they have not written a certificate of qualification examination, or hold journeyman status in a related trade.

*Essential Skills – <sup>1</sup>Numeracy, <sup>7</sup>Thinking (Critical, Job Task Planning & Organization), <sup>8</sup>Document Use*

### 4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- All required components, tools and equipment.
- Fixturlaser NXA Pro will be supplied and will be used for the alignment challenge
- Lincoln MIG Welders, Plasma Cutters & Smog Hogs
- Cordless Hand drills - Stanley/Dewalt model: DCD710S2
- 4 1/2" Angle Grinder (20 V) - Stanley/Dewalt model: DWE402K
- 4 1/2" Flapper Discs 5/8" arbor 80 grit - Stanley/Dewalt model: DW8313
- Hole Saw Bi-Metal Kits - Stanley/Dewalt model: D180005
- 20 V rechargeable batteries - Stanley/Dewalt model: DCB200
- 4amp batteries - Stanley/Dewalt model: DCB204
- 9 piece premium electricians hole saw set - Stanley/Dewalt model: DWA1802
- 20v cordless drill with 1.3amp batteries and charger - Stanley/Dewalt model: DCD771C2
- Cordless grinder - Stanley/Dewalt model: DCG412P2
- 8 gallon Hepa/RRP wet/dry dust extractor - Stanley/Dewalt model: DWV010
- Imperial Allen Keys – Wurth model: 00715 311 110
- Ball peen hammers – Wurth model: 1715 741 16

- Multisocket assortment kit - 1/2" + 1/4" drive socket set – Wurth model: 96517056
- Torque wrenches 1/2" drive– Wurth model: 7147123
- Recoiless hammer– Wurth model: 7157254
- Centre Punch– Wurth model: 7146341
- Hacksaws and blades (18 tpi) – Wurth model: STHT20138
- Standard combination wrench set imperial – Wurth
- Fractional twist drill set up to 1/2" diameter – Wurth
- Spotting Drills – Wurth
- Flat metal files (Rough) – Wurth model: 22-175
- Prick Punch – Wurth

**COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCC. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.**

**4.2** Equipment and material provided by the competitor

- No tools or equipment permitted

**4.3** Required clothing (Provided by competitor)

- Dressed in an appropriate manner
- (Provincial attire is acceptable)

**5 SAFETY REQUIREMENTS**

**5.1** Safety workshop

Upon arrival at the Skill area, Competitors will participate in a Safety workshop and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety and environment rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

**5.1** List of required personal protective equipment (PPE) provided by Skills/Compétences Canada.

- Safety Glasses (Clear Lens Only) - McCordick

**5.2** List of required personal protective equipment (PPE) provided by competitors

- CSA approved Safety shoes/boots
- Welding Helmet will be supplied.  
(Competitor's may bring their own Welding Helmet)
- Work gloves where required

**Note:** Competitors will not be allowed to compete if the above items are not brought and used

## 6 ASSESSMENT

### 6.1 Point breakdown

| POINT BREAKDOWN                                 | /100 |
|---|------|
| Machining (Lathe)                               | 25   |
| Laser Alignment with Thermal Growth             | 25   |
| Fluid Power (Pneumatics Circuit Design & Build) | 25   |
| Welding & Fabrication (M/C Guard)               | 25   |

## 7 ADDITIONAL INFORMATION

### 7.1 Consecutive translation

If consecutive translation is required on site, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this service might not be guaranteed.

### 7.2 Test Project change at the Competition

Where the Test Project has been circulated to Competitors in advance, NTC shall change a maximum of 30% of the work content. Please refer to the Competition Rules.

### 7.3 Tie (No ties are allowed)

In the event of a tie, the competitor with the highest score in the Laser Alignment section will be declared the winner.

### 7.4 Competition Rules

Please refer to the competition rules of the Skills Canada National Competition.

## 8 NATIONAL TECHNICAL COMMITTEE MEMBERS

| Member Organization     | Name            | Email address                |
|-------------------------|-----------------|------------------------------|
| British Columbia        | Robert Braun    |                              |
| Manitoba                | Dan Zvanovec    |                              |
| Ontario - Chair         | Craig Brazil    | craig.brazil@sheridanc.on.ca |
| Quebec                  | Normand Lavoie  |                              |
| Nova Scotia             | David MacMillan |                              |
| Saskatchewan            | Jim Tait        |                              |
| Newfoundland & Labrador | Steve Wells     |                              |
| Alberta                 | Roger Tokay     |                              |
| New Brunswick           | Shannon Savoy   |                              |