



**Skilled
Trades**
Ontario

**Métiers
spécialisés**
Ontario

Apprenticeship
Training Standard
Logbook

Mould Maker

431A

2022

Apprenticeship Training Standard

The Apprenticeship Training Standard or herein after referred to as “Logbook” is a document issued to Apprentices who sign a Registered Training Agreement in the Province of Ontario as an official record of training. It is to be used by the Apprentice and Sponsor/trainer to guide the process of skills development in a particular trade.

Training As An Apprentice

- ✓ Ensure you, your sponsor, and your witness sign a Training Agreement with the Ministry of Labour, Immigration, Training and Skills Development. Once it is registered, you will receive a copy of the registered Training Agreement for your records.
- ✓ Notify the local Service Delivery Office **immediately** if any changes to contact information or training agreement, especially if you change sponsors.
- ✓ Review the Logbook regularly with your trainer and sponsor to discuss your progress, ask questions, seek feedback and have the trainer **sign-off on competencies**
- ✓ Keep an accurate record of the hours you work.
- ✓ Attend classroom training when it is offered.
- ✓ Apply for the financial incentives for which you are eligible.



Completing Your Logbook

- ✓ **Complete the Sponsor Record Form** – A form must be completed for each Sponsor/Trainer used during your apprenticeship.
- ✓ **Confirm Skill Sign-off is Complete**
 - **You and your trainer** sign-off each required skill to confirm that you have demonstrated competency in that skill.
 - Shaded boxes in your Logbook mean the skills are optional and do not have to be confirmed by your trainer or sponsor. However, you are encouraged to complete them as part of your training.
- ✓ **Confirm Skill Set Sign-off is Complete**
 - After you and your trainer have signed-off all the required skills in a skill set, your sponsor signs the signature box on the form in **Appendix C – “Skill Set Completion for Sponsors”** to confirm your completion of all competencies within each skill set.

This document is the property of the apprentice named inside and represents the official record of your training. For information about completing your apprenticeship, see inside of back cover.



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Apprentice Name: _____

Address: _____

Phone Number: _____

Email Address: _____

Trade: _____

Training Agreement # (for Compulsory and Non-Compulsory trades):

STO Account No. (for Compulsory trades only):

This document is the property of the Apprentice named herein and represents the official record of their training.

If you have questions about the use of this Logbook or about your Apprenticeship program, contact your local Service Delivery Office (see Appendix D in this book) or the Employment Ontario hotline at: 1-800-387-5656.

Apprenticeship Pathway to a Certificate of Qualification

Phase 1: Registration

Submit Application for Apprenticeship Training through the on-line portal or to local Service Delivery Office

For on-line portal, please follow instructions for registration. You will need to create a *My Ontario* account to access online services.

Training agreement signed and registered by both apprentice and sponsor

Access your Apprenticeship Training Standard Logbook**
skilledtradesontario.ca/about-trades/trades-information

** This is the official record of your training progress. You are responsible for keeping it up-to-date.

Complete on-the-job training

Demonstrate and receive sign-off on the competencies/skills in your Apprenticeship Training Standard Logbook

Complete in-school training

Attend and complete the in-class training set out in the Curriculum Training Standard

Apprentices eligible to apply for apprenticeship incentive grants (Red Seal trades) and loans.

Review and finalize your logbook with your sponsor

Submit proof of apprenticeship completion via email, in-person or digital portal

Your Apprenticeship Training Standard Logbook details completion requirements. Submit the following:

- completed Apprenticeship Training Standard Logbook with signatures
- proof of hours

Certificate of Apprenticeship is issued

Trades without examination

CofA is the final step of the program

Trades with examination (compulsory and non-compulsory trades)*

Provisional Certificate of Qualification issued for a 12 month term

To prepare for the CofQ examination download the Provincial and/or Red Seal Exam preparation guides.

Make payment for your Certificate of Qualification examination

Call to make a payment (647-847-3000 or 1-855-299-0028)

Schedule a date to write your Examination

To schedule your examination, contact your local Service Delivery Office.

Pass Certificate of Qualification examination

Apprentices eligible to apply for Apprenticeship Completion Grant (Red Seal trades) or Apprentice Completion Bonus (non-Red Seal)

Certificate of Qualification is issued

Upon completion, Sponsors may be eligible for Apprenticeship grants, incentives, bonuses or tax credits

Phase 2: Apprenticeship

Phase 3: Certification

* For a list of trades subject to a certification examination, visit: skilledtradesontario.ca

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Please Note: This Standard has been revised to reflect the visual identity of Skilled Trades Ontario (STO) which replaced the Ontario College of Trades on January 1, 2022. The content of this Standard may refer to the former organization; however, all trade specific information or content remains relevant and accurate based on the original date of publishing.

Please refer to STO's website: skilledtradesontario.ca for the most accurate and up to date information. For information about BOSTA and its regulations, please visit [Building Opportunities in the Skilled Trades Act, 2021 \(BOSTA\)](#).

Any updates to this publication are available on-line; to download this document in PDF format, please follow the link: [Skilled Trades Ontario.ca](https://skilledtradesontario.ca).

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Maintained with transfer to Skilled Trades Ontario 2022 (V100)

Foreword: Purpose, Terms and Conditions of the registered Training Agreement

Purpose:

- Prior to starting official apprenticeship activities, the apprentice, sponsor and a witness are required to sign a Training Agreement.
- The Training Agreement that you have signed is an important legal document that outlines your responsibilities as an apprentice and the responsibilities of your sponsor.
- Once registered, this training agreement (or contract) marks the start of your formal agreement between the apprentice, the sponsor and the Ministry.
- For compulsory trades, the apprenticeship registration document must be accessible when working.

The Apprentice agrees:

- **To inform the local Service Delivery Office of any change to your contact information or change in sponsor within 7 days;**
- To follow the Sponsor's and Trainer's lawful instructions and make every effort to acquire the skills identified in the Logbook for the Trade which is part of the apprenticeship program established by Skilled Trades Ontario for the trade;
- To obtain written verification from the Sponsor and the Trainer(s) that the requirements in the Logbook for the trade have been met.
- When you receive an "Offer of Classroom Training", confirm your attendance by following the instructions in the offer. Failure to do so may result in losing your opportunity to attend school which delays the completion of your apprenticeship.

The Sponsor agrees:

- To ensure that the Apprentice is provided with the training required as part of the apprenticeship program established by Skilled Trades Ontario for this trade;
- To review the progress of training with the Apprentice, and with the Trainer(s) where the Sponsor and the Trainer are not the same party.
- Release your apprentice from work to attend in-school training without penalty to the apprentice.
- To maintain the journeyman/apprentice ratio for your trade, if applicable.
- To monitor their apprentice(s) progress
- To ensure that the Trainer(s) verifies, in writing, when each skill identified in the Logbook for the trade has been successfully completed by the Apprentice;
- To contact the Ministry should any changes in your capacity to train, your contact information, or your apprentice's status in the program change.

Trade Specific Resources and Links

| Trade Specific Resource | Link |
|--|--|
| Red Seal Program | red-seal.ca |
| Apprenticeship in Ontario | ontario.ca/page/apprenticeship-ontario |
| Employment Ontario | employmentontario.ca |
| Service Canada | servicecanada.gc.ca |
| <i>Building Opportunities in the Skilled Trades Act, 2021</i> | Building Opportunities in the Skilled Trades Act, 2021, S.O. 2021, c. 28 - Bill 288 (ontario.ca) |
| Ministry of Labour, Immigration, Training and Skills Development | Ministry of Labour, Immigration, Training and Skills Development ontario.ca |
| Exam Preparation Guide | Exam Resources – Skilled Trades Ontario |
| Skills Zone (Ontario Skills Passport) | http://www.skillszone.ca/ |

**Please note, all website addresses are current at time of printing*

Methodology-Standard Development

A standard is developed with a broad group of trade representatives who form the initial working group. This includes subject matter experts/ tradespeople/ instructors and employers from a cross section of the sector/industry, with varying years of work experience in the field. The working group reviews, develops and recommends revision to the content of the standard. Their role also involves harmonizing and updating other supporting content for the product.

An essential part of the standard development is the validation process. This is the opportunity to have a broader representation of the sector provide feedback on the content of draft standard. This process is conducted in various ways and may include sending out a survey or the draft document (or both) directly to the sector. The comments received are reviewed by the working group and revisions are made as required based on a consensus model.

Introduction to the Logbook

This “on-the job” Logbook is the training standard for Mould Maker 431A and was developed by Skilled Trades Ontario in consultation with representatives from industry. It identifies all the skills associated with and required to learn the trade.

The Logbook is divided into skill sets, which are further divided into skills. These skill sets and skills are written in statements that describe what the Apprentice must perform and to what standard, in order to be considered competent in that skill.

The successful performance of these skills is tracked in the Logbook. Once achieved, this skills’ sign-off, along with the completion of in-school program requirements or equivalent, is how the apprenticeship program is completed and apprentices receive a Certificate of Apprenticeship.

The Sponsor/trainer and Apprentice are required to sign-off and date each skill after the Apprentice has demonstrated proficiency in these skills. However, if a skill is shaded, it is optional and does not need to be signed-off, though it has been defined as a part of the scope of practice for the trade.

All practices described in this standard must be performed by the apprentice according to the specific criteria identified. In general, the standard of performance for this trade is to be performed according to all applicable jurisdictional codes and standards and all health and safety standards must be respected and observed.

All skills within the Apprenticeship Training Standard are to be performed, as applicable, according to and in compliance with the following:

- Occupational Health and Safety Legislation and Regulations;
- Other applicable legislation, regulation, codes and standards;
- Industry best practices;
- Company policies and procedures.

The information presented in this standard is, to the best of our knowledge, current at time of printing and is intended for general application. Please refer to the Skilled Trades Ontario website for the most accurate and up-to-date information: skilledtradesontario.ca

Roles and Responsibilities

Under the [Building Opportunities in the Skilled Trades Act, 2021 \(BOSTA\)](#)

Skilled Trades Ontario (STO) is responsible for:

- Establishing and maintaining qualifications;
- Establishing Apprenticeship Programs and other training programs including training Standards, curriculum standards and certifying examinations;
- Issuing certificates for the purposes of this Act such as Certificates of Qualification;
- Maintaining a Public Registry for compulsory trades skilledtradesontario.ca/public-register/;
- Determining whether the experience and qualifications obtained by applicants for a certificate of qualification who do not complete an apprenticeship are equivalent to those received through completing an apprenticeship (Trade Equivalency Assessments)
- Promoting the skilled trades and conducting research.
- Conducting research and evaluate whether a trade should be prescribed as a trade for the purposes of this Act and to make recommendations on these matters to the Minister.

Ministry of Labour, Immigration, Training and Skills Development (MLITSD)

is responsible for:

- Classifying trades as compulsory trades;
- Prescribing scopes of practice for trades;
- Approving which persons may provide in-class training for apprenticeship programs (TDAs);
- Registering Training Agreements;
- Providing those who successfully complete an apprenticeship program with a certificate of apprenticeship (CofA);
- Administering examinations, including certifying examinations;
- Promoting the skilled trades and conducting research;
- Exercising such other powers and perform such other duties and functions as are provided for in this Act or the regulations.

For any matter related to your registered Training Agreement or completing your apprenticeship, you must contact your local Service Delivery Office.

Roles and Responsibilities of the Apprentice

An Apprentice is an individual who has entered into a registered Training Agreement (refer to Foreword: *“Purpose, Terms and Conditions of TA” page 1*) with a Sponsor to receive training in a trade as part of an apprenticeship program established by Skilled Trades Ontario. As an Apprentice, you have certain roles and responsibilities to follow throughout your apprenticeship training:

1. As an Apprentice, you signed the Training Agreement and have entered into a contract with the Ministry of Labour, Immigration, Training and Skills Development and your Sponsor.
2. If you are registered as an Apprentice in a compulsory trade, your name will automatically appear in the Skilled Trades Ontario Public Register.
3. You are responsible for informing the staff at your local Service Delivery Office regarding changes to the following:
 - Your Sponsor’s address;
 - Your name and address; and/or,
 - Your Sponsor, including starting employment with a new Sponsor
4. As an Apprentice, you are responsible for completing skills or skill sets in this Logbook (as detailed in the *“Eligibility for Apprenticeship Program Completion”* section of this document) and ensuring that they are dated and signed by both you and your Trainer.
5. Once you have demonstrated competency in all the mandatory skills and received a sign off on each skill by your sponsor/trainer, you must have the Skill Set Completion Form completed and signed by your current Sponsor.
6. Submit your Logbook to your local Service Delivery Office.
7. Present your Apprentice Completion Form (Please refer to Appendix B), along with your authorized Logbook to your local Service Delivery Office.

Roles and Responsibilities of Sponsors and Trainers

Sponsors are responsible for ensuring all terms are met as per the registered Training Agreement. They are named on the registered Training Agreement as the entity responsible for ensuring Apprentices receive the training required as part of an apprenticeship program. As a signatory to this agreement, they are designated as the 'Signing Authority' for the Apprentice's Skill Set Completion Form and are required to attest to successful achievement by signing the appropriate box at the completion of each skill set. Some sponsors may also act as the Trainer.

A **Trainer** is an individual who oversees the performance of a task and sets the workplace expectations and practices for the Apprentice.

In compulsory trades, a Trainer must hold a valid Certificate of Qualification and be registered with Skilled Trades Ontario.

In non-compulsory trades, a Trainer is an individual who holds one of the following:

- A Certificate of Qualification;
- A Certificate of Apprenticeship in the trade; or,
- Has completed both the workplace-based training (competencies and/or hours as applicable) and classroom training components of the trade's apprenticeship program; or,
- Has workplace experience equivalent to the apprenticeship program) and has the skills outlined in the Logbook.

Competency means being able to perform to the required standard (please refer to "*Introduction to the Logbook*"). Trainers/Sponsors and Apprentices are required to sign-off and date the skills in the Logbook following each successful acquisition. The Logbook forms a record of this achievement.

The Trainer must provide their signature based on their assessment and professional judgment that the apprentice is competent in the skills described above. The Trainer's signature is not a general warranty or guarantee of the apprentice's future conduct.

Sponsors participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement by signing the appropriate box included at the end of each skill set.

Health and Safety

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance for apprenticeship programs in Ontario. These responsibilities are shared and require the joint efforts of government, sponsors, employers, supervisors, workers, apprentices and the public to achieve the goal of making Ontario's workplaces safe and healthy.

The [Occupational Health and Safety Act](#) (OHSA) provides us with the legal framework and the tools to do this. It sets out the rights and duties of all parties in the workplace, placing ultimate responsibility on the employer for the health and safety of workers (in this case apprentices) by ensuring procedures, controls, and training are established for dealing with workplace hazards. Therefore, it is imperative that all parties become aware of circumstances that may lead to injury, illness or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to or cause an accident injury or illness.

A sponsor who is not the employer is reminded that the employer has legal responsibilities respecting health and safety over the apprentice who is their worker. The sponsor should encourage safe work habits and adherence to the employer's occupational health and safety requirements for the workplace.

It is generally recognized that a positive attitude about safety in partnership with health and safety competency contributes to an accident-free environment. Everyone will benefit as a result of a healthy attitude towards the prevention of accidents.

Workers and apprentices can be exposed to a multitude of hazards and, therefore, should be familiar with the Occupational Health and Safety Act and regulations.

The Internal Responsibility System:

One of the primary purposes of the Occupational Health and Safety Act (OHSA) is to facilitate a strong Internal Responsibility System (IRS) in the workplace. To this end, the OHSA lays out the duties of employers, supervisors, workers, apprentices, constructors and workplace owners.

Workplace parties' compliance with their respective statutory duties is essential to the establishment of a strong IRS in the workplace.

Simply put, the IRS means that everyone in the workplace has a role to play in keeping workplaces safe and healthy. Workers and apprentices in the workplace who see a health and safety problem such as a hazard or contravention of the OHSA in the workplace have a statutory duty to report the situation to the employer or a supervisor. Employers and supervisors are, in turn, required to address those situations and acquaint workers with any hazard in the work that they do.

The IRS helps support a safe and healthy workplace. In addition to the workplace parties' compliance with their legal duties, the IRS is further supported by well-defined health and safety policies and programs, including the design, control, monitoring and supervision of the work being performed.

Roles and Responsibilities under the Occupational Health and Safety Act

Employer's Responsibilities include but are not limited to the following:

- Instruct, inform and supervise workers and apprentices to protect their health and safety.
- Appoint competent persons as supervisors.
- Inform a worker, apprentice, or a person in authority, about any hazard in the workplace and train them in the handling, storage, use, disposal and transport of any equipment, substances, tools, material, etc.
- Take every precaution reasonable in the circumstances for the protection of a worker/apprentice.
- In workplaces in which more than five workers are regularly employed, prepare and post a written occupational health and safety policy and set up and maintain a program to implement it.
- Prepare and post policies with respect to workplace violence and workplace harassment and develop programs supporting workplace harassment and workplace violence policies.
- Ensure knowledge of applicable legislative, regulatory, codes and standards so requirements to be followed are clear to all workers/apprentices.

Trainer/Supervisor Responsibilities include but are not limited to the following:

- Ensure that a worker or apprentice works in compliance with the Act and regulations.
- Ensure that any equipment, protective device or clothing required by the employer is used or worn by the worker or apprentice.
- Advise a worker/apprentice of any potential or actual health or safety dangers known by the supervisor.
- Take every precaution reasonable in the circumstances for the protection of workers.

Worker/Apprentice Responsibilities include but are not limited to the following:

- Work in compliance with the Act and regulations.
- Use or wear any equipment, protective devices or clothing required by the employer.
- Report to the employer or supervisor any known missing or defective equipment or protective device that may endanger the worker or another worker.
- Report any hazard or contravention of the Act or regulations to the employer or supervisor.
- Not remove or make ineffective any protective device required by the employer or by the regulations.
- Not use or operate any equipment or work in a way that may endanger any worker.

The Three Rights of Workers/Apprentices

The OHSA gives workers and apprentices three important rights:

1. The right to know about hazards in their work and get information, supervision and instruction to protect their health and safety on the job.
2. The right to participate in identifying and solving workplace health and safety problems either through a health and safety representative or a worker member of a joint health and safety committee.
3. The right to refuse work that they believe is dangerous to their health and safety or that of any other worker in the workplace.

Ministry of Labour, Immigration, Training and Skills Development

The Ministry of Labour, Immigration, Training and Skills Development conducts periodic inspections of workplaces to ensure that safety acts and regulations are being followed. Please direct any questions to the Occupational Health and Safety Contact Centre at 1-877-202-0008.

Apprenticeship Program Summary/Guidelines

Scope of Practice

The Scope of Practice for the trade of Mould Maker is set out in section 92 of Ontario Regulation 875/21 under BOSTA and reads as follows:

- 92.** The scope of practice for the trade of mould maker includes the following:
1. Reading and interpreting complex engineering drawings and work process documentation.
 2. Designing, making and repairing moulds and models used to mass produce plastic or metal components or products.
 3. Building precision mould components using metal cutting machines and equipment, including saws, drills, grinders, lathes, mills and electrical discharge machines.
 4. Performing work-in-process measuring and checking, using specialized and precision tools and equipment.

*While the Logbook draws on the scope of practice regulation (Section 92 of Ontario Regulation 875/21 under BOSTA). The Logbook does not purport to add to or modify the scope of practice as provided in regulation. *

Program Guidelines

On-the-Job Training Duration

Industry has identified 7280 hours as the benchmark necessary for any Apprentice to become competent in the skills required. There may be circumstances in which the duration varies from this guideline.

In-Class Training Duration

Industry has identified 720 hours of in-school training as the duration necessary for an Apprentice to complete the in-school curriculum for this program.

Total Training Hours

8000 hours

Journeyman to Apprentice Ratio

Industry Recommended Ratios:

While some of the trades regulated under BOSTA are subject to Journeyman to Apprentice ratios set out in regulation, this trade is not one of them. Instead, **industry has recommended a Journeyman to Apprentice ratio guideline of 1 Journeyman (or individual who is deemed equivalent to a journeyman) to 1 Apprentice** as the ratio necessary for an Apprentice to be properly trained on the job in this program.

Program Requirements

Compulsory and Non-compulsory Classification

Regulations under the *Building Opportunities in the Skilled Trades Act, 2021*, classify each trade as either “compulsory” or non-compulsory.” This trade is non-compulsory.

It is the responsibility of an Apprentice to maintain a training record in the form of a Logbook. The Sponsor and Trainer are required to sign-off when competencies in the trade are achieved.

Skills for Success Summary

Skills for Success are needed in a quickly changing world for work, learning and life. They are foundational for building other skills and important for effective social interaction. Everyone benefits from having these skills as they help individuals get a job, progress at their current job and change jobs. They also help individuals become active members of their community and succeed in learning.

Through extensive research and consultations, the Government of Canada launched the new Skills for Success model renewing the previous Essential Skills framework to better reflect the needs of the current and future labour market.

The occupational specific Essential Skills profiles are available online. These will be updated over time to align with the new Skills for Success model found here: [Skills for Success model](#)

Standard of Performance

In general, the standard of performance for the trade of Mould Maker are to be performed, as applicable, according to and in compliance with the following:

Industry Safety Standards which are based upon:

- Occupational Health and Safety Legislation and Regulations;
- Jurisdictional legislation and regulations, codes and standards (municipal bylaws etc.)
- Company policies and procedures
- All applicable manufacturers specifications and engineering specifications

Training the Apprentice - Tips for Apprentices, Sponsors and Trainers

Tips for Apprentices

Remember, it takes time to learn. The following is a list of additional tips and tools to help make the most of your apprenticeship training:

- Practice safe work procedures early to create good habits;
- Use your Logbook as a journal to keep track of the skills you have achieved;
- Review your training plan with your Training Consultant, Trainer, or Sponsor;
- Discuss your training needs with your Trainer and/or Sponsor;
- Listen to the suggestions of your Trainer;
- Ask your Trainer questions if you are unsure of any skill you need to perform or any tools or equipment you need to use to perform your duties;
- Show enthusiasm and develop good work habits; and,
- Upon demonstration of competency, ensure that you and your Trainer sign-off the individual skills.

To get the most from this mentoring experience, request exposure to the full scope of the trade; meet regularly with your Sponsor/Trainer to discuss your progress, ask questions and seek feedback.

Tips for Sponsors

- Select Trainers with good communication skills and who work well with others;
- Ensure that the Apprentice always works under the direction of or has access to a qualified Trainer;
- Encourage Trainers to take upgrading courses (e.g. Train the Trainer, Mentor, Coach, etc.);
- Set out clear expectations and involve both the Apprentice and Trainer in developing the training plan
- Encourage safe work habits;
- Allow time for the Trainer to train and demonstrate skills to the Apprentice;
- Provide opportunities and time for the Apprentice to learn the trade;
- Ensure that the Apprentice receives the varied on-the-job trade training experience outlined in this document;
- Recognize good performance;
- Observe frequently;
- Provide constructive feedback and conduct regular performance reviews involving the Apprentice and Trainer;
- Use the Logbook as a monitoring tool and a part of regular performance evaluations; and,
- Complete the Skill Set Completion Form once the Apprentice has demonstrated competency in the skills.

- The detailed content listed for each skill is not intended to represent an inclusive list; rather, it is included to illustrate the intended direction for the skill acquisition.

Tips for Trainers

Trainers are responsible for ensuring the Apprentice is developing the skills outlined in this document. Here is a list of tips and tools to help Trainers in their supervision of Apprentices:

- Demonstrate model safe work habits;
- Provide opportunities and time for the Apprentice to learn the trade;
- Treat Apprentices fairly and with respect;
- Review the Logbook with the Apprentice and develop a training plan;
- Set out clear expectations and recognize good performance;
- Expose Apprentices to the full scope of the trade by providing training on the skills outlined in this document;
- Encourage and respond to all questions;
- Be patient;
- Explain, show and demonstrate the skill;
- **Meet regularly with the Apprentice to discuss the apprentice's progress**
- Provide continuous feedback;
- Sign-off skills when your Apprentice demonstrates competency, and,
- Use the Logbook as a guide to evaluate competence in each skill area. By using the Logbook, Trainers will be able to guide the process to and assist Apprentices to develop skills outlined in this document.

The best mentoring experience is when an Apprentice is given as much training/exposure to the full scope of the trade as possible. If this is not possible, help them to determine other ways this may be possible.

Notice of Collection of Personal Information

1. At any time during your apprenticeship training, you may be required to show this Logbook to the local Service Delivery Office. You will be required to submit the signed Apprenticeship Completion form to the Service Delivery Office in order to complete your program. The Service Delivery Office will use your personal information to administer and finance Ontario's apprenticeship training system, including confirming your completion and issuing your Certificate of Apprenticeship.
2. The Service Delivery Office will disclose information about your program completion and your Certificate of Apprenticeship to Skilled Trades Ontario, as it is necessary for Skilled Trades Ontario to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry of Labour, Immigration, Training and Skills Development under the authority of the *Building Opportunities in the Skilled Trades Act, 2021 (BOSTA)*.
4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Labour, Immigration, Training and Skills Development
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
TTY: 1-866-533-6339 or 416-325-4084

All skills within this Standard are to be performed according to and compliance with:

- Occupational Health and Safety Legislation and Regulations
- Manufacturer’s specifications
- Company, employer and client policies, and
- Industry best practices (where applicable)

9386 Protect Self, Others and the Environment

General Performance Objective

Protect self, others and the environment, by: identifying health and safety hazards in the workplace; identifying and locating workplace safety features; wearing, adjusting, and maintaining Personal Protective Equipment (PPE); wearing, adjusting, and maintaining respiratory protectors; practicing safe work habits; following fire procedures; operating emergency safety equipment; practicing industrial hygiene; practising housekeeping; conducting pre-operational check of equipment; reporting injuries; following procedures for initiating first aid; locking out mechanical equipment; handling designated substances; inspecting and operating lifting equipment; following hot-runner safe-testing procedures; following hydraulic and pneumatic safe-testing procedures; following welding safety procedures; and protecting the environment.

Skills

9386.01 Identify health and safety hazards in the workplace, by:

- ensuring that the potential for personal injury, damage to equipment or the environment is prevented;
- taking corrective action; and
- reporting hazards

in accordance with company standards/procedures and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

9386.02 Identify and locate workplace safety features, such as fire extinguishers, fire alarms, muster points, power cut-offs, emergency stop buttons and emergency exits, by:

- ensuring that the potential for personal injury, damage to equipment or the environment is prevented;
- taking corrective action; and
- reporting hazards

in accordance with company standards/procedures and government regulations.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.03 Wear, adjust, and maintain personal protective equipment (PPE) such as eye, ear, hand, and foot protectors, by:

- ensuring fit and optimum protection for the wearer and the task being performed

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.04 Wear, adjust, and maintain respiratory protectors, by:

- ensuring fit and optimum protection for the wearer and the task being performed

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.05 Practise safe work habits, by:

- staying outside of guards and barricades;
- wearing required clothing (not loose or torn);
- confining long hair; and
- removing jewellery

in accordance with company standards/procedures and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.06 Follow fire procedures, by:

- locating and assessing the severity of the fire;
- taking appropriate action;
- suppressing minor fire;
- activating alarm; and
- ensuring hot work permitting and reporting

in accordance with company standards/procedures and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.07 Operate emergency safety equipment such as fire extinguishers, respirators, and fire blankets, by:

- ensuring that the procedures are carried out in a safe and efficient manner

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.08 Practise industrial hygiene, by:

- wearing required clothing;
- using eye wash and hand wash; and
- showering to avoid contamination or injury

in accordance with company standards/procedures, manufacturer’s recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9386.09 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer’s recommendations, and government regulations.

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9386.10 Conduct pre-operational check of equipment, by:

- checking that guards and safety devices are in place, operational, secured, and not damaged; and
- checking machine for damaged or worn parts and frayed wires

in accordance with company standards/procedures, manufacturer’s recommendations and government regulations.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9386.11 Report injuries to supervisor or first aid personnel promptly, by:

- ensuring that the injured person is attended to;
- reporting information accurately; and
- ensuring future recurrence of similar accidents is prevented

in accordance with company standards/procedures and government regulations.

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9386.12 Follow procedures for initiating first aid to treat conditions such as sudden illness, burns, cuts, abrasions, sprains, chemical inhalations, falls and contaminants, by:

- ensuring the condition of the victim is stabilized and preparing for further first aid treatment

in accordance with company standards/procedures and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9386.13 Lock out mechanical equipment for repair or maintenance, by:

- shutting down and tagging machine or manufacturing process;
- ensuring that no materials can enter the equipment being repaired or maintained;
- ensuring no damage is caused to the machine; and
- ensuring accidents are prevented

in accordance with company standards/procedures and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9386.14 Handle designated substances, by:

- using specified handling and storage equipment;
- protecting the operator from injury;
- protecting the environment from contamination;
- following safety procedures

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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9386.15 Inspect and operate lifting equipment such as hoists, overhead cranes, chain falls, lift pins, eye bolts, slings, cables, and chains, by:

- performing visual inspect for defects such as cracks, tears, bends and wear:
- reporting findings;
- following lifting procedures; and
- removing, transporting and storing materials, parts, or equipment

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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9386.16 Follow hot-runner safe-testing procedures, by:

- using testing equipment; and
- following testing procedures

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9386.17 Follow hydraulic and pneumatic safe-testing procedures, by:

- using testing equipment; and
- following testing procedures

in accordance with company standards/procedures, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9386.18 Follow welding safety procedures for Shielded Metal Arc Welding (SMAW/ STICK), Gas Metal Arc Welding (GMAW/MIG), and Gas Tungsten Arc Welding (GTAW/TIG), by:

- using PPE specific to welding;
- using shielding guards to prevent injury to self or others; and
- applying safe-handling procedures for gases

in accordance with company standards/procedures, Canadian Welding Bureau (CWB), manufacturer’s recommendations and government regulations.

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9386.19 Protect the environment, by:

- removing and disposing hazardous and unwanted materials (waste management company);
- positioning equipment such as forklifts and cranes, to avoid damage to natural environment;
- reducing and controlling VOCs (Volatile Organic Compounds);
- storing hazardous materials in designated areas;
- preventing and containing hazardous spills and emissions;
- reducing, reusing and recycling waste materials; and
- maintaining separate waste streams for water and solvents

in accordance with CSA, OHSA, WHMIS/Global Harmonized System (GHS), environmental legislation, company policies and procedures, manufacturer’s and job specifications and industry standards.

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9387 Plan and Prepare for Machining Job

General Performance Objective

Plan and prepare for machining job, by: reading and interpreting drawings; performing calculations for machining operations; reading and interpreting work-process documentation; verifying workpiece material; identifying and selecting cutting fluids; identifying and selecting conventional and computer numerically controlled (CNC) machines; identifying and checking machine controls and systems; identifying and selecting tooling; identifying and preparing cutting tools; selecting and verifying measuring instruments and checking devices; selecting machine speeds and feeds; laying out workpiece features; selecting work-holding devices; picking up datum/starting position; selecting, inspecting and using rigging and hoisting equipment and components; and, communicating with co-workers.

Skills

9387.01 Read and interpret drawings*, by:

- selecting required tools and equipment;
- identifying dimensions and tolerances and/or geometric dimensioning and tolerance (GD & T);
- identifying machine surface designations and allowances; and
- identifying type and features of workpiece materials

in accordance with company standards/procedures and job documentation.

***drawings include:** engineering, blue prints, CAD data, working drawings, sketches and other documentation.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9387.02 Perform calculations for machining operations, by:

- determining speeds and feeds;
- determining machining times;
- calculating cutting tool positions;
- checking workpiece alignments;
- calculating dimensions to be measured and verified using both Metric and Imperial System; and
- ensuring that required specifications and parameters are accurately determined to machine the workpiece

in accordance with drawings, job specifications, manufacturer’s recommendations, and Machinery’s Handbook.

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9387.03 Read and interpret work-process documentation, by:

- identifying required tools and equipment;
- determining job operation and sequencing; and
- determining method of machining and set-ups

in accordance with drawings, company standards/procedures, job specifications and Machinery’s Handbook.

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9387.04 Verify workpiece material, by:

- determining size, material and type of workpiece;
- checking colour codes, lettering, numerical stamps and certifications;
and
- determining if any modification is required

in accordance with drawings, company standards/procedures, job specifications, job instruction sheets and Machinery's Handbook.

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9387.05 Identity and select cutting fluids, by:

- using manuals, charts, engineering drawings and Safety Data Sheets (SDS); and
- ensuring that the cutting fluid selected maximizes machining efficiency without damage to workpiece, cutting tool, or machine

in accordance with drawings, company standards/procedures, manufacturer's recommendations, job specifications and Machinery's Handbook.

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9387.06 Identify and select conventional and computer numerically controlled (CNC) machines such as saws, drills, lathes, grinders, electrical discharge machines (EDM) and vertical or horizontal mills, by:

- using information from drawings and work process documentation; and
- ensuring that the machine selected is suited for the application

in accordance with drawings, company standards/procedures, job specifications and Machinery's Handbook.

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9387.07 Identify and check machine controls and systems, by:

- locating and identifying switches, buttons, levers, controls and safety devices; and
- ensuring that all controls are operational and functioning

in accordance with drawings, company standards/procedures, manufacturer's and job specifications.

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9387.08 Identify and select tooling required to cut the workpiece, by:

- using information from drawings and job instructions;
- identifying cutting fluid; and
- ensuring that the tooling selected is the required size and type for the application

in accordance with drawings, company standards/procedures, manufacturer's and job specifications, and Machinery's Handbook.

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9387.09 Identify and prepare cutting tools such as drill bits, end mills, face mills, reamers, electrodes, wires and saw blades, by;

- sharpening or replacing tools so that the cutting shape and angle are prepared for optimum cutting;
- ensuring tools are secured; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, manufacturer's and job specifications, and Machinery's Handbook.

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9387.10 **Select and verify measuring instruments and checking devices** such as micrometers, verniers, bore gauge, go/no-go gauge, dial test indicator, by:

- verifying that the instruments and devices selected are capable of measuring to obtain the dimensions and tolerances; and
- verifying that calibration is up to date

in accordance with company standards/procedures, manufacturer’s and job specifications.

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9387.11 **Select machine speeds and feeds**, by:

- using speed and feed charts or applying formulas to determine speeds and feeds;
- considering type of machine;
- considering type and hardness of workpiece materials;
- considering cutting tool material and size;
- ensuring optimum cutting without damage to workpiece, cutting tools, or machines; and
- ensuring safety of self and others

in accordance with company standards/procedures, manufacturer’s recommendations and job specifications.

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9387.12 Lay out workpiece features onto the workpiece, by:

- using precision measuring instruments such as vernier caliper, height gauge and combination set;
- using layout equipment such as scribe, center punch, surface plate, combination set, and layout medium or dyes; and
- calculating dimensions and features such as bolt hole circles using a specified datum

in accordance with drawings, company standards/procedures, manufacturer's and job specifications, and Machinery's Handbook.

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9387.13 Select work-holding devices such as vises, clamps, jigs, chucks, face plates, centers, steady rest, tailstocks and mandrels, by:

- ensuring that the work-holding device selected is suitable for the application;
- ensuring workpiece is secured in position; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications and Machinery's Handbook.

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9387.14 Pick up datum/starting position, by:

- using layout lines, tooling balls, features or edge of the part; and
- using required tools such as pointers, wigglers, indicators, lasers, probes and edge finders to identify and locate the datum/starting position

in accordance with drawings, company standards/procedures and job specifications.

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9387.15 Select, inspect and use rigging and hoisting equipment and components such as hoists, overhead cranes, chain falls, lift pins, cables, eye bolts, chains, slings and magnets, A-frames, lift trucks, attachments, ropes (fibre and wire), slings, thimbles, shackles, spreader bars, chains, hooks, rope blocks, by:

- planning lift using load characteristics to determine load weight and centre of gravity;
- removing obstacles and dangers;
- referencing load charts;
- applying required rigging and hoisting procedures;
- inspecting rigging and hoisting equipment and components; and
- removing from service if defective or unsafe

in accordance with drawings, company standards/procedures, safety and government regulations, manufacturer's and job specifications, and Machinery's Handbook.

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9387.16 Communicate with co-workers, by:

- identifying scheduling requirements and timelines;
- establishing work team and roles;
- identifying availability of tools, parts, and machinery;
- reporting any issues and delays;
- dealing with conflicts;
- corresponding via email, meetings, drawings and pertinent documentation; and
- ensuring communication is clear, concise and accurate

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9388 Perform Work-In-Process Dimensional or Surface Verification

General Performance Objective

Perform work-in-process dimensional or surface verification, by: checking straight cuts; checking shapes, surfaces and contours; checking holes; checking threads; checking tapers; checking hardness; maintaining material identification; deburring workpiece; performing inspection; and completing work documentation.

Skills

9388.01 Check straight cuts, by:

- using precision measuring instruments such as micrometer, verniers, calipers, squares, straight edge and dial indicator; and
- ensuring accurate size, finish, flatness, parallelism and squareness of the cut

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9388.02 Check shapes, surfaces and contours, by:

- using precision measuring instruments such as verniers and comparators;
- using checking devices such as radius gauges, squares, pin gauges and templates;
- ensuring the accuracy of the profile and finish of the cut shape using coordinate measuring machine (CMM) or 3D scanner; and
- checking surface roughness using profilometer

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9388.03 Check holes, by:

- using precision measuring instruments such as verniers, comparators, dial indicators, inside micrometers, bore gauges and telescopic gauges;
- using checking devices such as radius gauges, squares and plug/pin gauges; and
- ensuring the accuracy of diameter, depth, concentricity, position and finish of cut holes

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9388.04 Check threads, by:

- using precision measuring instruments such as comparators, micrometer, thread micrometer and telescopic gauges;
- using checking devices such as thread gauge, and plug or ring gauges;
- using 3-wire method; and
- ensuring the accuracy of pitch, thread geometry and size of cut threads

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9388.05 Check tapers, by:

- using precision measuring instruments micrometers, verniers;
- using checking devices such as taper gauge and sine bar; and
- ensuring the accuracy of the angle, taper/distance, and diameter of the cut taper

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9388.06 Check hardness, by:

- using various types of hardness testers such as rockwell and vickers scales;
- using manual methods such as hardness files; and
- ensuring the hardness level of the workpiece materials

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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9388.07 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9388.08 Deburr workpiece, by:

- using files, scrapers, emery cloth, sanders, stones, tumblers and hand or pedestal grinders;
- removing excess material; and
- ensuring safe handling

in accordance with drawings, company standards/procedures and job specifications.

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9388.09 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, coordinate measuring machine (CMM), height gauges or indicators, 3D scanning and profilometer;
- using checking devices such as, gauge blocks, radius gauges, sine bars and pin gauges; and
- ensuring the surface finish, tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9388.10 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately with process traceability to prevent tool build issues and root cause analysis

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9389 Perform Benchwork

General Performance Objective

Perform benchwork, by: hand-filing; hand-sawing; drilling holes; hand-threading; hand-reaming; repairing threads; hand-finishing; maintaining material identification; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9389.01 Hand-file, by:

- using files such as flat, diamond, needle, smooth, bastard, rat-tail, lathe and half-round to remove excess material; and
- filing to achieve shape or dimension

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9389.02 Hand-saw, by:

- using hack saw or coping saw;
- cutting workpiece to specified dimensions; and
- selecting blade for material type and thickness

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9389.03 Drill holes, by:

- determining size and depth of hole;
- applying required cutting fluid; and
- using a power drill and drill bits

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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9389.04 Hand-thread, by:

- determining the depth of threads;
- applying required cutting fluid; and
- using taps, tapping wrench, tapping block and hand dies

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9389.05 Hand-ream, by:

- determining size and depth of hole;
- using straight, spiral-fluted, tapered and line reamers to achieve desired hole dimensions; and
- applying required cutting fluid

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9389.06 Repair threads, by:

- using hand taps and dies, thread files and thread inserts; and
- repairing or cleaning damaged threads

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9389.07 Hand-finish, by:

- grinding, lapping and honing;
- using pneumatic or electric hand grinders, hones, stones, abrasives, carbide burrs and files;
- removing excess material, tool and cutter marks; and
- finishing workpiece

in accordance with drawings, company standards/procedures, manufacturer's and job specifications and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9389.08 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9389.09 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges or indicators;
- using checking devices such as, gauge blocks, radius gauges, sine bars and pin gauges; and
- ensuring the surface finish, tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9389.10 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9389.11 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9390 Perform Power Sawing

General Performance Objective

Perform power sawing, by: selecting and visually inspecting blade; aligning and securing workpiece in saw; selecting and adjusting speeds and feeds of saws; installing and test-running blade; checking cut-off; cutting shapes using vertical bandsaw; cutting squared and angled surfaces using a power cut-off saw; maintaining material identification; deburring workpiece; performing inspection; practicing housekeeping; and, completing work documentation.

Skills

9390.01 Select and visually inspect blade, by:

- considering material type and thickness;
- considering power saw type; and
- checking fused/welded blade

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9390.02 Align and secure workpiece in saw, by:

- setting up workholding devices such as clamps, nesting fixtures, V-block, vises, or roller supports;
- ensuring that the workpiece is aligned, secured, and stable during sawing operations; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's specifications and Machinery's Handbook.

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9390.03 Select and adjust speeds and feeds of saws, by:

- using speed and feed charts or applying formulas to determine speeds and feeds;
- considering type of machine;
- considering type and hardness of workpiece materials;
- considering cutting tool material and size;
- selecting blade composition and design;
- ensuring optimum cutting without damage to workpiece, cutting tools, or machines; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9390.04 Install and test-run blade, by:

- installing the blade to make the required cut;
- checking alignments and movements;
- preventing machine or blade damage; and
- ensuring safety self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9390.05 Check cut-off, by:

- measuring and checking a cut-off piece;
- performing adjustments, as required;
- ensuring material safe condition for next process;
- verifying angles, squareness and dimensions; and
- ensuring safety self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9390.06 Cut shapes using a vertical bandsaw, by:

- using required sawing sequences;
- applying required cutting fluids;
- verifying the profile, size, and dimensions of the cut shapes; and
- ensuring safety self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9390.07 Cut squared and angled surfaces using a power cut-off saw, by:

- using required sawing sequences;
- applying required cutting fluids;
- verifying the squareness, angles, and dimensions of cut surface; and
- ensuring safety self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9390.08 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings and company standards/procedures and job specifications.

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9390.09 Deburr workpiece, by:

- using files, scrapers, emery cloth, sanders, and hand or pedestal grinders;
- removing excess material;
- ensuring safe handling; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9390.10 Perform inspection, by:

- using measuring instruments such as calipers, tape measures, scales and height gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9390.11 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations, and government regulations.

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9390.12 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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9391 Perform Drilling Using Drilling Machine

General Performance Objective

Perform drilling using drilling machine, by: selecting drill tooling; identifying and preparing cutting tools for drilling; aligning and securing workpiece in drilling machine; setting up tooling in drilling machine; selecting and adjusting speeds and feeds of drilling machine; center-drilling a layout punch mark; drilling a hole; chamfering/countersinking a hole; reaming a hole; tapping a hole; spotfacing a hole; counterboring a hole; deburring workpiece; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9391.01 Select drill tooling such as drill bits, centre drills, reamers, taps, counterbores, countersinks, and spotfaces, by:

- determining required size, shape, type, and grade for the application;
- determining type of tooling material such as high-speed steel (HSS), carbide or cobalt;
- considering type of material to be drilled; and
- considering tooling coatings

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9391.02 Identify and prepare cutting tools for drilling, by

- sharpening or replacing tools;
- ensuring cutting size, shape and angle is prepared for optimum cutting; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.03 Align and secure workpiece in drilling machine, by:

- setting up and securing workpiece with workholding devices such as drilling vises, clamps, jigs, angle plates, and chucks;
- aligning to lay out features using tools such as pointers, wigglers, centre punch marks, scribe lines or existing features; and
- ensuring workpiece is aligned, secured, and stable during drilling

in accordance with drawings, company standards/procedures, job and manufacturer’s recommendations and Machinery’s Handbook.

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9391.04 Set up tooling in drilling machine, by:

- using tool holding devices such as drill chucks, taper sleeves, collets and tapping heads;
- ensuring that tooling is in position and held securely during drilling; and
- verifying that all fastening tools such as chuck keys and spanner wrenches are removed

in accordance with drawings, company standards/procedures, job and manufacturer’s recommendations and Machinery’s Handbook.

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9391.05 Select and adjust speeds and feeds of drilling machine, by:

- using speed and feed charts or applying formulas to determine speeds and feeds;
- considering type of machine;
- considering type and hardness of workpiece materials;
- considering cutting tool material and size;
- considering tool composition and design; and
- ensuring optimum cutting without damage to workpiece, cutting tools, or machines

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.06 Centre-drill a layout punch mark, by:

- using a drilling machine, tool holding devise and centre-drill;
- applying cutting fluid, if required;
- verifying that centre-drill is aligned to the punch mark;
- verifying depth is suited for next process; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.07 Drill a hole, by:

- using a drilling machine, tool holding devise and drill bit;
- applying cutting fluids;
- verifying that drill is aligned to the centre-drilled hole;
- verifying the size and depth of drilled hole; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.08 Chamfer/countersink a hole, by:

- using a drilling machine, tool holding devise and countersink;
- breaking sharp edges or preparing the hole for the next process;
- applying cutting fluids, if required;
- verifying that countersink is aligned to the drilled hole;
- verifying the size, angle and depth of countersink; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.09 Ream a hole, by:

- using a drilling machine, tool holding devise and reamer;
- applying cutting fluids;
- verifying that reamer is aligned to the drilled hole;
- verifying the size and depth of reamed hole; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.10 Tap a hole, by:

- using a drilling machine, tool holding devise and tap;
- applying cutting fluids;
- verifying that tap is aligned to the drilled hole;
- verifying the size, depth and pitch of tapped hole; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9391.11 Spotface a hole, by:

- using a drilling machine, tool holding devise and spotfacing tool such as counter bore, end mill, flat bottom drill;
- applying cutting fluids, if required;
- verifying that the spotface tool is aligned to the drilled hole;
- verifying the size and depth of spotface; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.12 Counterbore a hole, by:

- using a drilling machine, tool holding devise and counter-bore;
- applying cutting fluids, if required;
- verifying that the counter-bore is aligned to the drilled hole;
- verifying the size and depth of counter-bore; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9391.13 Deburr workpiece by:

- using files, scrapers, emery cloth, sanders, and hand or pedestal grinders;
- removing excess material;
- ensuring safe handling; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9391.14 Perform inspection by:

- using precision measuring instruments such as inside and outside micrometers, height gauges or indicators and telescopic gauge;
- using checking devices such as taper, thread or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9391.15 Practise housekeeping in the workplace by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer’s recommendations, and government regulations.

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9391.16 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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9392 Perform Machine Grinding

General Performance Objective

Perform machine grinding, by: identifying and selecting grinding wheel; checking condition of grinding wheel; balancing and installing grinding wheel; dressing grinding wheel; selecting feed rate and depth of cut; aligning and securing workpiece in grinder; surface grinding workpiece; honing holes; lapping workpiece; grinding inside and outside diameters (ID/OD); grinding tools and cutters; checking ground surfaces; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9392.01 Identify and select grinding wheel, by:

- considering workpiece material, hardness and desired finish;
- considering type of grinding machine and process;
- ensuring that the wheel selected is the required grade and size to finish, shape, and size workpiece; and
- using manufacturer’s wheel charts to determine wheel specifications

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

9392.02 Check condition of grinding wheel, by:

- inspecting for defects, cracks, or chips;
- taking corrective action or replacing, if required; and
- performing a visual inspection, ring test and balance check

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9392.03 Balance and install grinding wheel, by:

- using surface plate, arbour and balance stand;
- adjusting weights to ensure balance; and
- placing the balanced arbour and wheel assembly into grinding machine

in accordance with company standards/procedures, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9392.04 Dress grinding wheel, by:

- using diamond or star-wheel dresser;
- dressing to specified profile, radii and/or tangents/angles; and
- ensuring safety to self and others

in accordance with company standards/procedures, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9392.05 Select feed rate and depth of cut, by:

- using manufacturer’s wheel charts;
- considering workpiece material and the finish of the workpiece; and
- ensuring optimum cutting without damage to workpiece, cutting tools, or machines

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9392.06 Align and secure workpiece in grinder, by:

- using work holding devices such as angle plates, magnetic holders, vises, chucks, centres, jigs, V-blocks or mandrels; and
- ensuring that the workpiece is aligned, secured, and stable during grinding operations

in accordance with drawings, company standards/procedures and job specifications.

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9392.07 Surface grind workpiece, by:

- using surface grinders;
- setting up machine stops;
- applying cutting fluid, if required;
- re-dressing the wheel, as required;
- achieving the finish and flatness of ground surfaces; and
- verifying dimension

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9392.08 Hone holes by:

- using honing devices and require attachments; and
- applying required fluid

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9392.09 Lap workpiece, by:

- hand lapping using a power lapping machine; and
- applying required fluid or paste

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9392.10 Grind inside and outside diameters (ID/OD), by:

- using machine grinders such as cylindrical, tool post and roll grinders;
- verifying the dimensions and tolerances of ground ID/OD surfaces; and
- applying fluid, if required

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9392.11 Grind tools and cutters, by:

- using pedestal, surface, or tool and cutter grinders; and
- ensuring optimum metal removal and finish

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9392.12 Check ground surfaces, by:

- using surface comparators and profilometers; and
- verifying surface finish

in accordance with drawings, company standards/procedures and job specifications.

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9392.13 Perform inspection by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges or indicators, telescopic gauges and profilometers;
- using checking devices such as gauge blocks, taper, thread or pin gauges;
- ensuring all tools have been calibrated; and
- verifying tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9392.14 Practise housekeeping in the workplace by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer’s recommendations, and government regulations.

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9392.15 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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9393 Perform Lathe Work

General Performance Objective

Perform lathe work, by: selecting lathe cutting tools; identifying and preparing lathe cutting tools; aligning and securing workpiece in lathe; setting up lathe cutting tools; selecting speeds and feeds of lathe and depth of cut; performing a trial cut; establishing a reference or starting point/datum; facing a surface; turning an outside diameter (OD); drilling a hole; boring an inside diameter (I/D); reaming a hole; tapping a hole; turning an ID or OD thread; cutting a taper; knurling cylindrical surface patterns; grooving and parting-off; maintaining material identification; deburring workpiece; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9393.01 Select lathe cutting tools such as drill bits, boring, parting, threading, knurling, facing, or turning tools, by:

- determining required size, shape, type, and grade for the application;
- determining type of tooling material such as high-speed steel (HSS), carbide or cobalt;
- considering type of material to be turned; and
- considering tooling coatings

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9393.02 Identify and prepare lathe cutting tools, by

- sharpening or replacing tools; and
- ensuring cutting size, shape and angle is prepared for optimum cutting

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.03 Align and secure workpiece in lathe, by:

- setting up and securing workpiece with workholding devices such as all chucks, face plates, centres, steady rest or tail stock; and
- ensuring workpiece is aligned, secured, and stable during turning

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.04 Set up lathe cutting tools, by:

- using tool posts and tail stocks;
- ensuring that tooling is in position and held securely during turning; and
- verifying that all fastening tools such as chuck keys and spanner wrenches are removed

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.05 Select speeds and feeds of lathe and depth of cut, by:

- using speed and feed charts or applying formulas to determine speeds and feeds;
- considering type of machine;
- considering diameter, type and hardness of workpiece materials;
- considering cutting tool material and size;
- considering tool composition and design; and
- ensuring optimum cutting without damage to workpiece, cutting tools, or machines

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.06 Perform a trial cut to establish a reference surface, by:

- checking speeds and feeds;
- applying cutting fluids;
- establishing depth of cut;
- verifying the lathe set-up; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.07 Establish a reference or starting point/datum, by:

- zeroing out machine; and
- verifying the workpiece datums

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.08 Face a surface, by:

- using a cutting tool;
- applying cutting fluids;
- verifying surface flatness and finished surface by measuring or checking with vernier, straight edge, dial indicator or micrometer; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.09 Turn an outside diameter (OD) by:

- using turning tool to machine to specified diameter;
- applying cutting fluids;
- verifying the OD dimension by measuring or checking with a vernier or micrometer; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.10 Drill a hole, by:

- using a centre-drill, drills, tail stock or tool post;
- applying cutting fluids;
- verifying the diameter and depth of the drilled hole by measuring or checking with vernier, micrometer, and gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.11 Bore an inside diameter (ID), by:

- using a boring bar mounted on a tool post;
- applying cutting fluids;
- verifying the ID and depth by measuring or checking with vernier, micrometer and gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.12 Ream a hole, by:

- using reamers, tail stock or tool post;
- applying cutting fluids;
- verifying the depth and diameter of the reamed hole by measuring or checking with vernier, micrometer, and gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9393.13 Tap a hole, by:

- using a tap, tapping head or tail stock or tool post;
- applying cutting fluids;
- verifying that tap is aligned to the drilled hole;
- verifying the size, depth and pitch of tapped hole by measuring or checking with thread gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9393.14 Turn an ID or OD thread, by:

- using a thread cutting tool;
- applying cutting fluid;
- verifying pitch, geometrical form, and dimensional tolerance of the turned thread by measuring or checking with 3-wire method, thread micrometers or thread gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.15 Cut a taper, by:

- using taper chart or applying formulas;
- applying cutting fluid, if required;
- using a taper-turning attachment or applying the compound rest method or offsetting the tail stock to specifications;
- verifying the size and angle of the turned taper by measuring or checking with protractors, micrometers, height gauges or templates; and
- ensuring safety of self and others.

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.16 Knurl cylindrical surface patterns by:

- using knurling tool;
- applying cutting fluid;
- verifying form, depth, and finish of knurled surface patterns by performing a visual inspection; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.17 Groove and part-off, by:

- using grooving or parting tools;
- applying cutting fluid;
- verifying the width, length, depth, profile and squareness of cuts by measuring or checking using vernier, squares, straight edges, indicators and micrometers; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9393.18 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings, company standards/procedures and job specifications.

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9393.19 Deburr workpiece, by:

- using files, scrapers, emery cloth, sanders, and hand or pedestal grinders;
- removing excess material;
- ensuring safe handling; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job and manufacturer's recommendations and Machinery's Handbook.

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9393.20 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges, verniers, indicators and telescopic gauge;
- using checking devices such as sine bars, gauge blocks, taper, thread or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9393.21 Practise housekeeping in the workplace by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations, and government regulations.

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9393.22 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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9394 Perform Milling

General Performance Objective

Perform milling, by: selecting milling cutting tools; identifying and preparing milling cutting tools; aligning and securing workpiece in milling machine; setting up milling cutting tools; selecting speeds and feeds of mills; perform fly-cutting; face-milling; machining steps, cut-outs, angles and open slots; machining a pocket; machining a hole; reaming a hole; tapping a hole; boring a hole; maintaining material identification; deburring workpiece; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9394.01 Select milling cutting tools such as end mills, face mills, shell cutters, slot drills, boring bars, profile cutters, slitting saws, and boring heads, by:

- determining required size, shape, type, and grade for the application;
- determining type of tooling material such as high-speed steel (HSS), carbide or cobalt;
- considering type of material to be turned; and
- considering tooling coatings

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9394.02 Identify and prepare milling cutting tools, by:

- sharpening or replacing tools; and
- ensuring cutting size, shape and angle is prepared for optimum cutting

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9394.03 Align and secure workpiece in milling machine, by:

- setting up and securing workpiece with workholding devices such as indexing heads, vises, angle plates, V-blocks, sine bars, rotary tables, clamps, screw jacks and fixtures; and
- ensuring workpiece is aligned, secured, and stable during milling

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.04 Set up milling cutting tools, by:

- using arbours, collets, and drill chucks;
- ensuring that tooling is in position and held securely during milling; and
- verifying that all fastening tools such as chuck keys and spanner wrenches are removed

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.05 Select speeds and feeds of mill, by:

- using speed and feed charts or applying formulas to determine speeds and feeds;
- considering type of machine;
- considering depth of cut, type and hardness of workpiece materials;
- considering cutting tool material and size;
- considering tool composition and design; and
- ensuring optimum cutting without damage to workpiece, cutting tools, or machines

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.06 Fly-cut, by:

- using a single point tool bit;
- applying cutting fluid;
- verifying the size, shape, squareness, and flatness; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.07 Face-mill, by:

- using a multi cutting edge face mill;
- applying cutting fluid or air blow;
- verifying the size, shape, squareness, and flatness; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.08 Machine steps, cut-outs, angles and open slots, by:

- using an end mill, rotary cutters;
- applying cutting fluid or air blow;
- verifying the size, shape and angle by measuring or checking using vernier, straight edges, indicators, protractors and micrometers; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.09 Machine a pocket, by:

- using a slot drill, center cutting end mill;
- applying cutting fluid or air blow;
- verifying the size, shape and angle by measuring or checking using vernier, gauge blocks, straight edges, indicators, protractors and micrometers; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.10 Machine a hole, by:

- using drill bits, end mills, reamers or slot drills;
- applying cutting fluid or air blow;
- verifying the diameter and depth by measuring or checking using verniers, pin gauges, indicators and micrometers; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.11 Ream a hole, by:

- using reamers and tool holder;
- applying cutting fluids;
- verifying the depth and diameter of the reamed hole by measuring or checking with vernier, micrometer, and gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9394.12 Tap a hole, by:

- using a tap and tapping head or tool holder;
- applying cutting fluids;
- verifying that tap is aligned to the drilled hole;
- verifying the size, depth and pitch of tapped hole by measuring or checking with thread gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9394.13 Bore a hole, by:

- using a boring bar and boring head;
- applying cutting fluids or air blow;
- verifying the diameter, finish, depth and location of the hole by measuring or checking with vernier, micrometer and bore gauges; and
- ensuring safety of self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9394.14 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings, company standards/procedures and job specifications.

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9394.15 Deburr workpiece, by:

- using files, scrapers, emery cloth, sanders, and hand or pedestal grinders;
- removing excess material;
- ensuring safe handling; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9394.16 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges, verniers, indicators and telescopic gauges;
- using checking devices such as sine bars, gauge blocks, tapers or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9394.17 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer’s recommendations, and government regulations.

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9394.18 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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9395 Perform Computer Numerically Controlled (CNC) Machining

General Performance Objective

Perform CNC machining, by: identify and selecting CNC machining process; preparing CNC set-up sheet; inputting CNC, CAD/CAM program data into the machine memory; determining tool path and calculating coordinates; identifying and selecting CNC cutting tools and tooling; setting up CNC tool offsets; identifying, selecting and setting machine parameters; aligning and securing workpiece in the CNC machine; verifying part program at CNC machine controls; storing and recording verified program; running CNC machining program; maintaining material identification; deburring workpiece; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9395.01 Identify and select CNC machining process, by:

- reviewing drawings and/or computer aided design (CAD) and computer aided machining (CAM) data;
- determining process(es) such as CNC EDM, CNC milling or CNC turning; and
- ensuring that the process selected is the required one to manufacture the parts or components

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

9395.02 Prepare CNC set-up sheet, by:

- identifying all pertinent information required for set up of machine tools such drawing name, part number, block datum location, customer information and cycle time

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.03 Input CNC, CAD/CAM program data into the machine memory, by:

- using information from machine-tool manual and programming data; and
- applying manual or computerized input

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.04 Determine tool path and calculate coordinates, by:

- establishing a tool path such as entry and exit moves;
- applying manual calculations and coding;
- applying CAM process; and
- verifying machine manually or in step-block mode

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.05 Identify and select CNC cutting tools and tooling such as tool holders, end and face mills, carbide insert tools, centre-drill, drill, taps, reamers, counter bores, and boring heads, by:

- reviewing part/mould geometry;
- considering machine capabilities and tool availabilities;
- considering material type, size and hardness; and
- ensuring that the tools and tooling selected are the required ones to machine the workpiece

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.06 Set up CNC tool offsets by:

- referencing pre-determined datum points;
- determining tool sequencing and offsets as defined in the tool path program; and
- ensuring that tools are set up accurately in machine carousel

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.07 Identify, select and set machine parameters such as spindle feeds, table feeds, and power settings using charts and formulas, by:

- considering the type, size, grade, and hardness of the material to be cut;
- verifying the required tools for the application; and
- ensuring that the workpiece is machined efficiently and safely without damage to tooling, machine, or workpiece

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.08 Align and secure workpiece in CNC machine, by:

- locating and positioning the workpiece to avoid collisions;
- using work holding devices chucks, face plates, collets, vises, clamps, stops, and fixtures;
- using edge finders, wigglers, probes to establish datums and alignments; and
- ensuring maximum stability during machining

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.09 Verify part program at CNC machine controls, by:

- performing a dry run;
- performing a trial cut;
- applying coolant, when required;
- measuring and checking dimensions;
- making adjustments to machine feeds, speeds and offsets;
- editing the program;
- performing an inspection prior to the production run; and
- verifying the dimensions, shape, and tolerances of the machined part

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.10 Store/record verified program, by:

- saving program on storage media such as server network, hard drives and USB (Universal Serial Bus) for future use

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.11 Run CNC machining program, by:

- monitoring the machining process;
- interrupting the program, if required, by measuring or checking dimensions;
- making adjustments to machine feeds, speeds, and offsets to optimize tool condition and life; and
- maintaining the dimensions, shape, and tolerances of the machined workpiece

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9395.12 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings, company standards/procedures and job specifications.

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9395.13 Deburr workpiece, by:

- using files, scrapers, emery cloth, sanders, and hand or pedestal grinders;
- removing excess material;
- ensuring safe handling; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9395.14 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges, probes, CMM, 3D scanning, verniers, indicators and telescopic gauges;
- using checking devices such as sine bars, gauge blocks, tapers or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with drawings, company standards/procedures and job specifications.

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9395.15 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations, and government regulations.

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9395.16 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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9396 Perform Electrical Discharge Machining (EDM)

General Performance Objective

Perform EDM, by: identifying and selecting EDM process; developing EDM electrodes; identifying, selecting and setting up EDM electrodes and components; identifying, selecting and setting up machine parameters; aligning and securing workpiece in EDM machine; cutting the workpiece using EDM; maintaining material identification; performing inspection; practising housekeeping; and completing work documentation.

Skills

9396.01 Identify and select Electrical Discharge Machining (EDM) process, by:

- reviewing drawings and/or computer aided design (CAD) and computer aided machining (CAM) data;
- determining process(es) such as wire, sink/plunge EDM; and
- ensuring that the process selected is the required one to manufacture the parts or components

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9396.02 Develop EDM electrodes, by:

- selecting the required electrode material such as graphite, copper, brass, steel and silver;
- considering the workpiece material, complexity and quantity;
- preparing sequence sheet and tool lists; and
- considering surface finish, tolerances, flushing or removal rates

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9396.03 Identify, select and set up EDM electrodes and components, such as cutting tools, EDM wire, tool holders and guides, by:

- establishing electrodes to pre-determined datums;
- ensuring electrode set up; and
- ensuring that the tools and tooling selected are the required ones to cut the workpiece

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9396.04 Identify, select and set machine parameters such as rotations, flushing rates, and power settings using speed and feed charts, by:

- considering the type, size, grade, and hardness of material to be cut; and
- ensuring the workpiece is machined efficiently and safely without damage to tooling, machine or workpiece

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9396.05 Align and secure workpiece in EDM machine, by:

- adhering to specified datums and required alignments;
- using workholding devices such as clamps, vises and angle plates;
- locating and positioning the workpiece; and
- ensuring maximum stability during machining

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9396.06 Cut workpiece using EDM, by:

- ensuring adequate fluid levels and flow;
- verifying over-burn allowance/spark gap on completed shape, contour, and size of the machined workpiece;
- measuring/checking the dimensions using verniers, depth micrometers and indicators; and
- ensuring safety to self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9396.07 Maintain material identification by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with CAD data and drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9396.08 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges, probes, CMM, 3D scanning, verniers, indicators and telescopic gauges;
- using checking devices such as sine bars, gauge blocks, tapers or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with CAD data and drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9396.09 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9396.10 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with CAD data and drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9397 Create A Plan for the Mould-Building Process

General Performance Objective

Create a plan for the mould-building process, by: reviewing the mould design and components; developing the mould-building plan; performing mould-building related calculations; organized mould and component materials; and produced a detailed sketch of mould and/or components.

Skills

9397.01 Review the mould design and components, by:

- reviewing the bill of materials (BOM) and quantities required;
- reviewing the CAD data and/or drawings, revision levels, projection and section views;
- identifying assembly process, number of functions, quantity and type of parts, and quantity of moulds;
- identifying types of machines and tools;
- identifying components, quantity, fit and function;
- identifying material, type, tolerances, sizes and/or dimensions;
- considering the mould datum points and component shapes; and
- ensuring that all required component features are checked and verified

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9397.02 Develop the mould-building plan, by:

- determining resources and availability;
- determining machine process and fabrication processes;
- determining job operations, assembly and sequencing;
- determining required fixtures and tooling;
- identifying secondary processes such as heat-treating, hardening, coatings and textures;
- coordinating bill of materials delivery timelines; and
- create a schedule, timelines and target dates

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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9397.03 Perform mould-building related calculations, by:

- using conversion tables/charts, material and product-specifications tables/charts;
- identifying clearances, tolerances, variances of material/mould contraction or expansion;
- calculating mould or tooling clearances, dimensions, tolerances, size, and shapes; and
- verifying mould tonnage and process parameters/cycle time

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9397.04 Organize mould and component materials, by:

- ensuring that the workpiece materials are the required ones to build the mould and components;
- identifying surface condition, type, grade, and dimensions; and
- confirming colour codes, lettering, numerical stamps, charts, stock lists and BOM

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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9397.05 Produce a detailed sketch of mould and/or components, by:

- ensuring that the mould and/or components, such as electrodes, and assemblies are accurately identified; and
- sketching for shape, dimensions, tolerances, finishes, and assembly interrelationship and processes

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9398 Manufacture Mould Components

General Performance Objective

Manufacture mould components, by: roughing-out mould components; stabilizing workpiece material; manufacturing cores; manufacturing mould components; manufacturing cavities; manufacturing detailed components; maintaining material identification; deburring workpiece; performing inspection; practicing housekeeping; and, completing work documentation.

Skills

9398.01 Rough-out mould components, by:

- producing rough dimensioned inserts, cavities, cores, slides, and lifters using equipment such mills, grinders, saws, lathes, drills, or EDM;
- verifying stock allowance; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

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9398.02 Stabilize workpiece material, by:

- following stress-relieving or heat-treating procedures;
- ensuring the workpiece metal is normalized and prepared for the next job operation; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9398.03 Manufacture cores, by:

- following required procedures;
- preparing faces such as block, top, bottom, back and sides;
- establishing datums, lines and reference points;
- machining features such as part contours, surfaces, parting lines, bushings, locking angles, lifter pockets, runners, gates, insert pockets, slide pockets, vents, heating and/or cooling lines;
- verifying dimensions, size and shape of the machined cores; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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9398.04 Manufacture mould components such as lifters, inserts, ejector plates and slides, by:

- following required procedures;
- preparing the flat working surfaces;
- establishing datums, lines and reference points;
- machining features such as part surfaces, parting lines, locks, pockets, core pins, bosses, moveable mechanisms, heating and/or cooling lines;
- verifying dimensions, size, and shape of machined lifters, inserts, ejector plates and slides; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9398.05 Manufacture cavities, by:

- following required procedures;
- preparing the flat working surfaces;
- establishing datums, lines and reference points;
- machining features such as part surfaces, parting lines, locking angles, runners, gates, vents, manifold pockets, guide pins, heating and/or cooling lines;
- verifying dimensions, size, and shape of machined cavities; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9398.06 Manufacture detailed components, by:

- following required procedures;
- preparing the flat working surfaces, if required;
- establishing datums, lines and reference points;
- machining features such as slide units, guide and horn pins, travel or safety straps, slide stops, stand-offs, cover plates, rest and stop buttons, plungers, wear plates, gibs heating and/or cooling lines;
- verifying dimensions, size, and shape of machined detailed components; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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9398.07 Maintain material identification, by:

- marking, colour-coding or stamping workpiece;
- completing shop documentation;
- facilitating traceability of the final product or work-in-process; and
- maintaining inventory control

in accordance with drawings, company standards/procedures and job specifications.

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9398.08 Deburr workpiece, by:

- using files, scrapers, emery cloth, sanders, and hand or pedestal grinders;
- removing excess material;
- ensuring safe handling; and
- ensuring safety to self and others

in accordance with drawings, company standards/procedures, job specifications, manufacturer's recommendations and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9398.09 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges, verniers, indicators and telescopic gauges;
- using checking devices such as sine bars, gauge blocks, tapers or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9398.10 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9398.11 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9399 Fit, Assemble and Repair Mould

General Performance Objective

Fit, assemble and repair mould, by: transferring and locating holes; fitting and sizing mould components; checking cooling or heating circuits; installing ejector system components; installing runner system components; spotting and assembling inspected mould; repairing mould, if required; performing inspection; practicing housekeeping; and completing work documentation.

Skills

9399.01 Transfer and locate holes, by:

- marking the components using tools such as transfer screws, wiggler, centre-finder, indicator and punches;
- transferring the holes correctly positioned and aligned in the matching parts; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

9399.02 Fit and size mould components, by:

- ensuring the fit of components such as inserts, slides, lifters, gibs, wear plates, core pins, ejector pins and valve-gate pins;
- removing excess material using tools such as files, stones, hand-grinders, lapping compounds, reamers, milling machines, and surface grinders;
- verifying fit, form and clearances of components to validate function; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9399.03 Check cooling and heating circuits, by:

- cleaning, plugging and circulating using the testing medium such as air or water;
- ensuring fluids are flowing freely and in the required flow direction (path);
- ensuring that all circuits are leak-free;
- verifying pressure and temperature using tools such as testing gauges and temperature probes; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications and manufacturer’s recommendations.

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9399.04 Install ejector system components, by:

- using components such as pins, plates, parallels, springs, cylinders, stop buttons, pillars, and limit switches;
- ensuring the location and orientation of components such as ejector pins and return pins;
- testing system and ensuring that the ejection system moves smoothly and freely; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications and manufacturer’s recommendations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9399.05 Install runner system components, by:

- using components such as manifold, nozzles, heaters, insulators, hydraulics, pressure pads, thermocouples, gate pins, locating rings, electrical boxes and connectors;
- ensuring no damaged wires or leaks are in the runner system;
- testing electrical components for functionality, if required;
- testing mechanical components, if required; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications and manufacturer’s recommendations.

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| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9399.06 Spot and inspect assembled mould, by;

- installing mould components in the mould;
- ensuring mould is secured and stable during the mould spotting process;
- verifying that the mould components are aligned using tools such as clamps and shims to required operational clearances;
- identifying high spots on the mould using transfer blue or comparable transfer die;
- removing excess material as ground or filed from the parting lines and seal-offs using tools such as hand-grinders, stones, burrs and files;
- verifying the mating surfaces are matched and finished;
- checking for slide movements;
- checking for wall-thickness and seal-offs using soft material, micrometers and verniers; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications and manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9399.07 Repair mould, if required, by;

- determining repair process such as inserting, welding, soldering, brazing or replacing component;
- determining if welding is permissible;
- preparing for welding by cleaning and grinding ferrous and non-ferrous materials; and selecting the appropriate welding process for the metal type;
- setting up and operating welding operation such as shielded metal arc welding (SMAW), Gas Metal Arc Welding (GMAW) [MIG], Gas Tungsten Arc Welding (GTAW) [TIG] and Laser Welding equipment;
- setting up and operating gas welding for soldering and brazing operations;
- heat-treating and stress-relieving metal and alloys using furnace, flame and oven;
- observing colour changes using colour charts, air, oil, and water-cooling medium specific to the application;

- returning repaired area back to desired shapes using tools or techniques such as hand grinding, stoning, turning, surface grinding, polishing and milling; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications and manufacturer's recommendations and Machinery's Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9399.08 Perform inspection, by:

- using precision measuring instruments such as inside, outside and depth micrometers, height gauges, verniers, indicators and telescopic gauges;
- using checking devices such as sine bars, gauge blocks, tapers or pin gauges; and
- verifying tolerances and dimensions of the workpiece

in accordance with CAD data, drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9399.09 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer's recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9399.10 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9400 Finish and Polish the Moulding Surface

General Performance Objective

Finish and polish the moulding surface, by: identifying and selecting hand-finishing tools; cleaning and deburring mould surface; detailing the workpiece; removing tool and cutter marks; verifying contours of the workpiece; finishing the mould surface; practicing housekeeping; and completing work documentation.

Skills

9400.01 Identify and select hand-finishing tools, by:

- reading and interpreting information from documentation; and
- determining tools such as hand-grinders, paste, abrasive compounds, stones, burrs, files, and emery cloths

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

9400.02 Clean and deburr mould surface, by:

- following required cleaning technique;
- inspecting the surface for defects;
- marking radii;
- protecting critical areas;
- deburring;
- completing the cleaning and de-burring process;
- verifying the mould surface; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specification, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9400.03 Detail the workpiece, by:

- hand-engraving using tools such as carbide burrs, grinding wheels, chisels, files, air or electric hand tools and punches;
- ensuring the conformity of hand-detailed shape and profile; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9400.04 Remove tool and cutter marks, by:

- using hand-grinders, files, stones, and abrasive discs,
- ensuring conformity of the contour, uniformity, and radii of the mould surface; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
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9400.05 Verify contours of the workpiece, by:

- using precision measuring instruments such as CMM and 3D scanning;
- using checking devices such as gauges and templates;
- performing a visual inspection;
- applying a surface casting of wax, modelling clay or low-heat metal, if required;
- ensuring conformity of the shapes and contours of the part; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9400.06 Finish the mould surface, by:

- using processes such as blasting, lapping, polishing;
- using lapping and diamond compounds, stones, or abrasives;
- verifying final surface finish of the mould using precision measuring instruments such as profilometers and surface comparator; and
- ensuring safety of self and others

in accordance with CAD data, drawings, company standards/procedures, job specifications, manufacturer’s recommendations and Machinery’s Handbook.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9400.07 Practise housekeeping in the workplace, by:

- cleaning up spills or leaks;
- keeping work area clean and clear of obstructions;
- storing tools or equipment;
- ensuring the potential for accident or injury is prevented; and
- ensuring tools or equipment are in place and available

in accordance with company standards/procedures or lean manufacturing ideology, manufacturer’s recommendations and government regulations.

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| mm/dd/yy | Trainer Print Name | *Trainer Signature |
| mm/dd/yy | Apprentice Print Name | Apprentice Signature |

9400.08 Complete work documentation such as tracking sheets, sign-off sheets, work orders, inspection reports, testing reports or procedure sheets, by:

- recording the finalization of jobs;
- facilitating traceability of work-in-process;
- updating drawing, if required; and
- ensuring that all data is recorded accurately

in accordance with drawings, company standards/procedures and job specifications.

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Definitions

Apprentice

- An individual who, pursuant to a registered Training Agreement, is receiving or is to receive training in a trade that is required as part of an apprenticeship program
- Holds a Training Agreement in either a compulsory or non-compulsory trade;
- Are subject to any ratios that have been set out in regulation and or recommended by industry for their trade(s);
- Remain as an Apprentice until they receive their Certificate of Apprenticeship

BOSTA

Building Opportunities in the Skilled Trades Act, 2021 (BOSTA)

Certificate of Apprenticeship (C of A)

A certificate issued to individuals who have demonstrated that they have completed an apprenticeship program in Ontario.

Certificate of Qualification (C of Q)

A certificate issued to an individual who has completed an apprenticeship or equivalent AND passed the Certificate of Qualification examination.

Competence

The ability of an individual to perform a skill, consistently without assistance, in the workplace as set out in the Logbook.

Competency Analysis Profile (CAP Chart)

A chart that identifies the training needs of an individual trade and details the skills/skill sets that must be demonstrated during an apprenticeship program.

Journeyman

Journeyman means an individual who holds a certificate of qualification (in a compulsory or non-compulsory trade) and/or an individual who practices as a journeyman in a non-compulsory trade who does not hold a certificate of qualification and has equivalent experience in that trade.

Mandatory Skill

Status assigned to unshaded individual skills, skill sets or general performance objectives which must be signed-off for the Apprentice to complete their program.

Optional Skill

Status assigned to shaded individual skills, skills sets or general performance objectives for which sign-off is not required for the Apprentice to complete the program.

Provisional Certificates of Qualification

- A Provisional Certificate of Qualification is issued to an individual who has obtained a Certificate of Apprenticeship (in both compulsory and non-compulsory trades) in a program that has a Certificate of Qualification examination, to which the individual has not yet passed the Certificate of Qualification examination.
- A Provisional Certificate of Qualification shall have the prescribed term or, if no term is prescribed, a term of one year.
- In a compulsory trade, the Provisional Certificate of Qualification allows a person to continue working legally in the trade for up to 12 months while they work to pass the certifying exam.
- Individuals with a Provisional Certificate of Qualification are subject to any ratios that have been set out for their trade(s).

Ratios

For the purpose of an Apprenticeship program, a ratio is the maximum number of Journeypersons to Apprentices. The purpose of ratios is to provide consistent supervision, training and continuity of work.

Sign-off

Signature of the Sponsor of record, or an individual to whom that Sponsor has delegated signing authority, (e.g. Trainer) indicating an Apprentice's demonstration of competence.

Skill

Individual competency/task described in the Logbook.

Skill Sets

Group or selection of individual skills found in the Logbook.

Skill Set Completion for Sponsors

Listing for all skill sets and includes space for sign-off by Sponsor of record.

Sponsor

Means a person that has entered into a registered Training Agreement under which the person is required to ensure that an individual is provided with workplace-based training in a trade as part of an apprenticeship program.

Sponsor of Record

Refers to the Sponsor documented as being signatory to the registered Training Agreement or Contract of Apprenticeship. In order for a Sponsor to be considered for the training of Apprentices, they must identify that the workplace has qualified persons or the equivalent on site, and can identify that the workplace has the tools, equipment, materials, and processes which have been identified by the Industry representatives for the trade.

Trainer

An individual who oversees the performance of a task and sets the workplace expectations and practices for the Apprentice. For a compulsory trade, a qualified Trainer is an individual who holds a Certificate of Qualification. In a non-compulsory trade, a Trainer is an individual who either holds a CofQ, CofA, or is considered equivalent.

Ready to Write Your Exam?

Many of the skilled trades in Ontario have a final certification examination that you must pass to become certified in your trade. Passing the examination gives you the right to hold yourself out as a Journeyperson and receive a Certificate of Qualification in your trade.

There are two types of trade certification examinations in Ontario:

1. Provincial (Ontario) examinations - which lead to a Certificate of Qualification.
2. Red Seal examinations – which lead to a Certificate of Qualification with an Interprovincial Red Seal endorsement.

If a trade is designated as Red Seal in Ontario, you will be writing the Red Seal examination. To access the Red Seal preparation guide please visit: red-seal.ca

Ontario's Exam Preparation Guide

[Exam Resources – Skilled Trades Ontario](#)

Basic Examination Details for You to Know

- You will have **up to four hours to write your examination.**
- Accommodations must be requested and approved prior to scheduling your examination.
- You can leave the examination centre if you complete the examination in less than four hours.
- Exam questions are multiple choice with four options from which you must choose the correct answer. Your examination may have between 90 and 150 multiple choice questions.
- You need a mark of 70% to pass.

Scheduling Your Examination

The examination scheduling process is currently outlined in detail on the Skilled Trades Ontario website: [Exam Scheduling – Skilled Trades Ontario](#)

Remember these 3 basic steps:

1. Confirm your eligibility to write the examination with Skilled Trades Ontario.
2. Contact Client Services at Skilled Trades Ontario to pay your examination fee.
3. Contact the local Service Delivery Office to schedule your examination in their examination centre: <https://www.ontario.ca/page/employment-ontario-apprenticeship-offices>

Instructions for Recording a Change in Sponsor

1. Record your first sponsor's information in Sponsor Record #1 – this would be the sponsor who has signed your initial apprenticeship Training Agreement for this trade.
2. If you do change sponsors prior to completing this apprenticeship, please contact your local Service Delivery Office immediately to update your sponsor record.
3. Please make sure you record all the information regarding any additional sponsors of record towards your apprenticeship using the Sponsor Records on the following pages (if applicable).

You must fill out a Change of Sponsor Record each time you change your sponsor.

Sponsor Record #1

| Sponsor Information | | |
|----------------------|--|-----------------|
| Apprentice Name | | |
| Training Agreement # | | Date (mm/dd/yy) |
| Sponsor Name | | |
| Address | | |
| Telephone | | |
| E-mail Address | | |

| Summary of Training | |
|--|--|
| Employment Start Date | |
| Employment End Date | |
| Total hours of training & instruction between dates of employment. | |
| Skill Sets Completed | |

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Change of Sponsor Record #2

| Sponsor Information | | |
|----------------------|--|-----------------|
| Apprentice Name | | |
| Training Agreement # | | Date (mm/dd/yy) |
| Sponsor Name | | |
| Address | | |
| Telephone | | |
| E-mail Address | | |

| Summary of Training | |
|--|--|
| Employment Start Date | |
| Employment End Date | |
| Total hours of training & instruction between dates of employment. | |
| Skill Sets Completed | |

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Change of Sponsor Record #3

| Sponsor Information | | |
|----------------------|--|-----------------|
| Apprentice Name | | |
| Training Agreement # | | Date (mm/dd/yy) |
| Sponsor Name | | |
| Address | | |
| Telephone | | |
| E-mail Address | | |

| Summary of Training | |
|--|--|
| Employment Start Date | |
| Employment End Date | |
| Total hours of training & instruction between dates of employment. | |
| Skill Sets Completed | |

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Change of Sponsor Record #4

| Sponsor Information | | |
|----------------------|--|-----------------|
| Apprentice Name | | |
| Training Agreement # | | Date (mm/dd/yy) |
| Sponsor Name | | |
| Address | | |
| Telephone | | |
| E-mail Address | | |

| Summary of Training | |
|--|--|
| Employment Start Date | |
| Employment End Date | |
| Total hours of training & instruction between dates of employment. | |
| Skill Sets Completed | |

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Appendix A — Instructions for Apprenticeship Program Completion

Once an Apprentice has completed all the classroom training and benchmark on-the-job hours specified for the trade and has acquired all the mandatory skills included in this Logbook.

The Apprentice and the Sponsor complete the Apprentice Completion Form and the Skill Set Completion for Sponsors Form located on the following pages.

1. They sign the forms and submit them to their local Service Delivery Office. To find the closest office, check the contact information at ontario.ca/page/employment-ontario-apprenticeship-offices or call the Employment Ontario toll free number at (1-800-387-5656).
2. For All Trades: All mandatory skills (or the combination indicated in the completion requirements for the trade) in the Logbook must be signed-off. The recommended hours are a benchmark. If the Sponsor is completing the Apprentice before the industry recommended training hours are done, staff may request further information regarding the Apprentice's on-the-job training. An example of a request would be a letter from the Sponsor confirming the Apprentice worked for some time in the trade before the initial Training Agreement was registered, thereby acquiring some skills beforehand.

If Apprentices are submitting the completion request form and supporting documentation to their local Service Delivery Office by mail, fax, or email (as a scanned document), they should not include their Logbook; if they are presenting this form in person at the local Service Delivery Office, they should bring their Logbook with them.

After staff verifies all the information in the completion request, they may contact either the Apprentice or the Sponsor for further information or documentation. Once the completion has been confirmed, the local Service Delivery Office will issue a Certificate of Apprenticeship to the Apprentice.

Skilled Trades Ontario will receive notification of this completion.

- If the Apprentice has completed a program in a **compulsory trade**, Skilled Trades Ontario will automatically register the Apprentice for a Provisional Certificate of Qualification to continue to work legally for one year while preparing for the certification examination.
- If an Apprentice completes their apprenticeship in a **non-compulsory trade** and there is a Certificate of Qualification exam, they must write and pass the exam to receive a Certificate of Qualification from Skilled Trades Ontario.

For permission to schedule an exam once completion is confirmed, the individual must first contact the Skilled Trades Ontario Client Services Department at 647-847-3000 or toll free at 1-855-299-0028 to pay the certification examination fee. Once you have paid your exam fee with Skilled Trades Ontario, book your exam by contacting your nearest Employment Ontario local Service Delivery Office.

Appendix B — Apprentice Completion Form

Please fill out both sides of this form, including the Skill Set Completion for Sponsors (see back of form). Once both sides are completed, submit the form to your local Service Delivery Office (find contact information at ontario.ca/page/employment-ontario-apprenticeship-offices or by calling Employment Ontario at (1-800-387-5656).

| Apprentice Information | |
|--------------------------------|--|
| Name (print) | |
| Client ID # Issued by Ministry | |
| Telephone Number(s) | |

| Sponsor Information | |
|--|--|
| Legal Name | |
| Address | |
| Telephone Number(s) | |
| Sponsor's Signing Authority <i>(print name)</i> | |
| E-mail Address | |

| Program Information | |
|--|---|
| Trade Name | |
| Number of hours required as per Training Agreement <i>(hours-based trades only)</i> | |
| Hours completed? <i>(documentation attached)</i> | Yes () No () Not applicable () |
| Classroom training completed or exempt? | Yes () No () Not applicable () |

I hereby confirm that the information submitted on both sides of this form is true and accurate.

X _____
Apprentice's Signature Date

X _____
Signature of Sponsor's Signing Authority Date

Appendix D — Local Service Delivery Offices in Ontario

For current office listings visit: ontario.ca/page/employment-Ontario-apprenticeship-offices

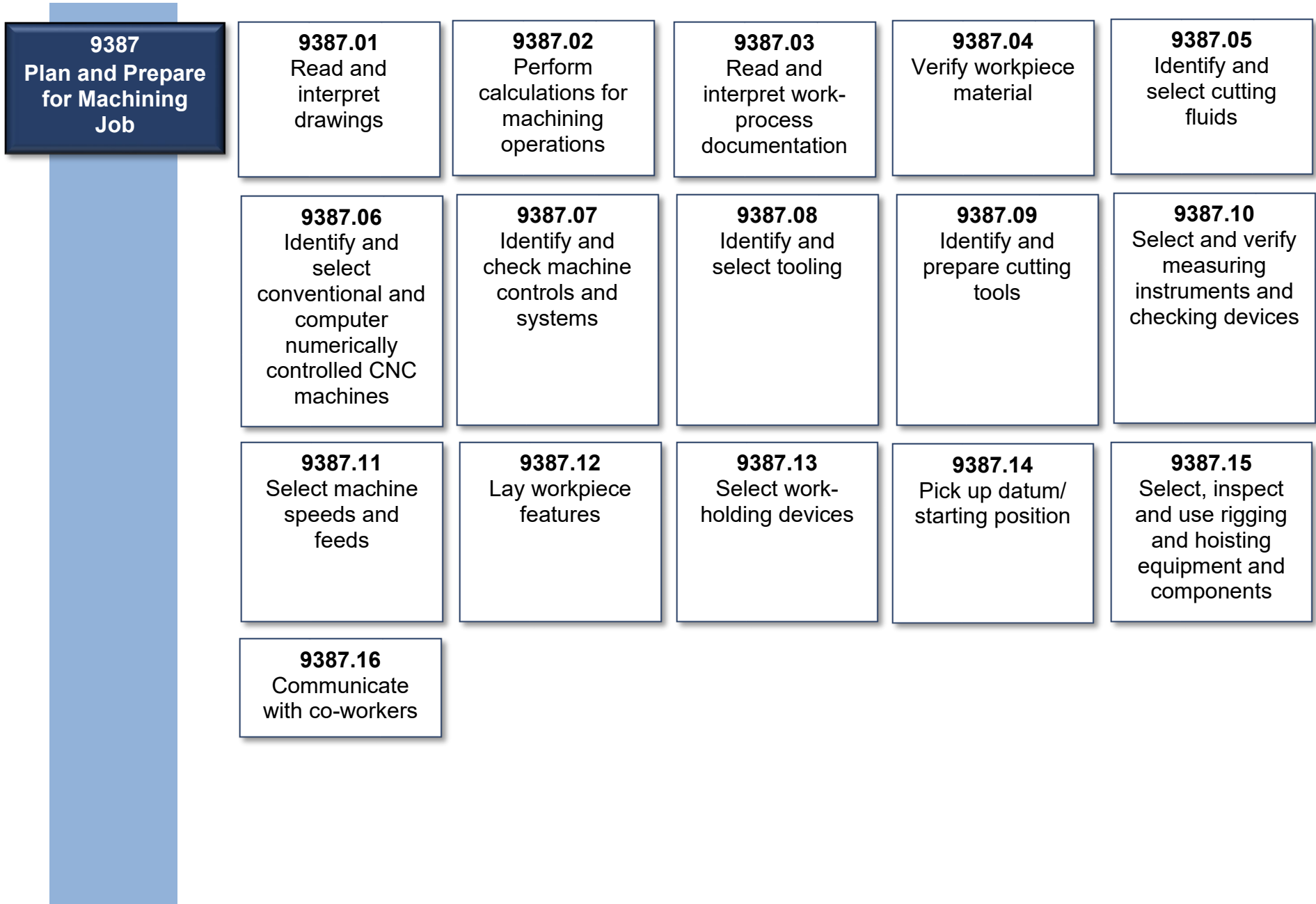
| Location | Contact | Location | Contact |
|---|---|---|---|
| Barrie 705-737-1431 | 55 Cedar Pointe Dr Unit 609, Barrie, ON L4N 5R7 | Marathon 807-346-1550 | 52 Peninsula Road, Suite 103 Marathon, Ontario, P0T 2E0 |
| Belleville 613-968-5558 1-800-953-6885 | 135 North Front St, Belleville, ON K8P 3B5 | Markham 905-513-2695 | 140 Allstate Parkway, Suite 505, Markham, Ontario L3R 5Y8 |
| Brantford 519-756-5197 | 505 Park Rd North Suite 201, Brantford, ON N3R 7K8 | North Bay 705-495-8515 1-800-236-0744 | 200 First Ave West, North Bay, ON P1B 3B9 |
| Chatham 519-354-2766 1-800-214-8284 | 870 Richmond St West 1st Floor, Chatham, ON N7M 5J5 | Ottawa 613-731-7100 1-877-221-1220 | Preston Square, 347 Preston Street, Suite 310, Ottawa, ON K1S 3H8 |
| Cornwall 613-938-9702 1-877-668-6604 | 132 Second St East Ste 202, Cornwall, ON K6H 1Y4 | Owen Sound 519-376-5790 1-800-838-9468 | 1450 1st Ave West, Suite 100, Owen Sound, ON N4K 6W2 |
| Dryden 807-456-2665 1-800-734-9572 | Provincial Government Building, 479 Government St, Dryden, ON P8N 3K9 | Peel 905-279-7333 1-800-736-5520 | The Emerald Centre, 10 Kingsbridge Garden Circle, Suite 404, Mississauga, ON L5R 3K6 |
| Durham 905-433-0595 1-800-461-4608 | 78 Richmond Street West, Oshawa, ON L1G 1E1 | Pembroke 613-735-3911 1-800-807-0227 | 615 Pembroke St East, Pembroke, ON K8A 3L7 |
| Elliot Lake 1-800-236-8817 | 50 Hillside Dr North, Elliot Lake, ON P5A 1X4 | Peterborough 705-745-1918 1-877-433-6555 | 901 Lansdowne St West, Peterborough, ON K9J 1Z5 |
| Fort Frances 807-274-8634 | 922 Scott St 2nd Flr, Fort Frances, ON P9A 1J4 | Sarnia 519-542-7705 1-800-363-8453 | Bayside Mall, 150 Christina St North, Sarnia, ON N7T 7W5 |
| Geraldton 807-854-1966 | 208 Beamish Avenue West Geraldton, Ontario P0T 1M0 | Sault Ste. Marie 705-945-6815 1-800-236-8817 | 477 Queen St East 4th Flr, Sault Ste Marie, ON P6A 1Z5 |
| Halton 905-842-5105 1-844-901-5105 | 700 Dorval Dr., Suite 201, Oakville, ON L6K 3V3 | St Catharines 905-704-2991 1-800-263-4475 | Garden City Tower, 301 St Paul St East, 10th Flr, St Catharines, ON L2R 7R4 |
| Hamilton 905-521-7764 1-800-668-4479 | Ellen Fairclough Bldg, 119 King St West 8th Flr, Hamilton, ON L8P 4Y7 | Sudbury 705-564-3030 1-800-603-5999 | 159 Cedar St Ste 506, Sudbury, ON P3E 6A5 |
| Kapuskasing 705-465-5785 705-235-1950 | Ontario Government Complex, 122 Government Rd West, Kapuskasing, ON P5N 2X8 | Thunder Bay 807-346-1550 1-800-439-5493 | 189 Red River Rd Suite 103, Thunder Bay, ON P7B 1A2 |
| Kenora 807-468-2879 1-800-734-9572 | 227 1/2 Second St South, Kenora, ON P9N 1G4 | Timmins 705-235-1950 1-877-275-5139 | Ontario Government Complex, 5520 Highway 101 East Wing B, South Porcupine, ON P0N 1H0 |
| Kingston 613-548-1151 1-866-973-4043 | Alliance Business Centre, 299 Concession St Ste 201, Kingston, ON K7K 2B9 | Toronto Centre 416-927-7366 1-800-387-5656 | 2 St Clair West, 11 th floor Toronto, ON M4A 1L5 |
| Kitchener 519-653-5758 1-866-877-0099 | 4275 King St East, Kitchener, ON N2P 2E9 | Toronto South 416-326-5800 | 625 Church St 1st Fl, Toronto, ON M7A 2B5 |
| London 519-675-7788 1-800-265-1050 | 1200 Commissioners Rd E, Unit 72, London, ON N5Z 4R3 | Windsor 519-973-1441 | Roundhouse Centre, 3155 Howard Ave 2nd Fl, Suite 200, Windsor, ON N8X 4Y8 |

Competency Analysis Profile (CAP) Chart

9386
**Protect Self,
Others and the
Environment**

| | | | | |
|---|--|--|---|--|
| 9386.01 Identify health and safety hazards in the workplace | 9386.02 Identify and locate workplace safety features | 9386.03 Wear, adjust, and maintain personal protective equipment (PPE) | 9386.04 Wear, adjust, and maintain respiratory protectors | 9386.05 Practice safe work habits |
| 9386.06 Follow fire procedures | 9386.07 Operate emergency safety equipment | 9386.08 Practise industrial hygiene | 9386.09 Practise housekeeping in the workplace | 9386.10 Conduct pre-operational check of equipment |
| 9386.11 Report injuries | 9386.12 Follow procedures for initiating first aid | 9386.13 Lock out mechanical equipment | 9386.14 Handle designated substances | 9386.15 Inspect and operate lifting equipment |
| 9386.16 Follow hot-runner safe-testing procedures | 9386.17 Follow hydraulic and pneumatic safe-testing procedures | 9386.18 Follow welding safety procedures | 9386.19 Protect the environment | |

Competency Analysis Profile: Mould Maker 431A (all unshaded skill sets must be completed)



Competency Analysis Profile: Mould Maker 431A *(all unshaded skill sets must be completed)*

| | | | | | |
|---|---|---|--|--|--|
| 9388 Perform Work-in-Process Dimensional or Surface Verification | 9388.01 Check straight cuts | 9388.02 Check shapes, surfaces and contours | 9388.03 Check holes | 9388.04 Check threads | 9388.05 Check tapers |
| | 9388.06 Check hardness | 9388.07 Maintain material identification | 9388.08 Deburr workpiece | 9388.09 Perform inspection | 9388.10 Complete work documentation |
| 9389 Perform Benchwork | 9389.01 Hand-file | 9389.02 Hand-saw | 9389.03 Drill holes | 9389.04 Hand-thread | 9389.05 Hand-ream |
| | 9389.06 Repair threads | 9389.07 Hand-finish | 9389.08 Maintain material identification | 9389.09 Perform inspection | 9389.10 Practise housekeeping in the workplace |
| | 9389.11 Complete work documentation | | | | |
| 9390 Perform Power Sawing | 9390.01 Select and visually inspect blade | 9390.02 Align and secure workpiece in saw | 9390.03 Select and adjust speeds and feeds of saws | 9390.04 Install and test-run blade | 9390.05 Check cut-off |

Competency Analysis Profile: Mould Maker 431A *(all unshaded skill sets must be completed)*

| | | | | | |
|--|--|---|--|--|--|
| 9390 Perform Power Sawing (continued) | 9390.06 Cut shapes using a vertical bandsaw | 9390.07 Cut squared and angled surfaces using a power cut-off saw | 9390.08 Maintain material identification | 9390.09 Deburr workpiece | 9390.10 Perform inspection |
| | 9390.11 Practise housekeeping in the workplace | 9390.12 Complete work documentation | | | |
| 9391 Perform Drilling Using Drilling Machine | 9391.01 Select drill tooling | 9391.02 Identify and prepare cutting tools for drilling | 9391.03 Align and secure workpiece in drilling machine | 9391.04 Set up tooling in drilling machine | 9391.05 Select and adjust speeds and feeds of drilling machine |
| | 9391.06 Centre-drill a layout punch mark | 9391.07 Drill a hole | 9391.08 Chamfer/counter sink a hole | 9391.09 Ream a hole | 9391.10 Tap a hole |
| | 9391.11 Spotface a hole | 9391.12 Counterbore a hole | 9391.13 Deburr workpiece | 9391.14 Perform inspection | 9391.15 Practise housekeeping in the workplace |
| | 9391.16 Complete work documentation | | | | |
| | | | | | |

Competency Analysis Profile: Mould Maker 431A *(all unshaded skill sets must be completed)*

| | | | | | |
|--|---|---|---|--|---|
| 9392 Perform Machine Grinding | 9392.01 Identify and select grinding wheel | 9392.02 Check condition of grinding wheel | 9392.03 Balance and install grinding wheel | 9392.04 Dress grinding wheel | 9392.05 Select feed rate and depth of cut |
| | 9392.06 Align and secure workpiece in grinder | 9392.07 Surface grind workpiece | 9392.08 Hone holes | 9392.09 Lap workpiece | 9392.10 Grind inside and outside diameters (ID/OD) |
| | 9392.11 Grind tools and cutters | 9392.12 Check ground surfaces | 9392.13 Perform inspection | 9392.14 Practise housekeeping in the workplace | 9392.15 Complete work documentation |
| 9393 Perform Lathe Work | 9393.01 Select lathe cutting tools | 9393.02 Identify and prepare lathe cutting tools | 9393.03 Align and secure workpiece in lathe | 9393.04 Set up lathe cutting tools | 9393.05 Select speeds and feeds of lathe and depth of cut |
| | 9393.06 Perform a trial cut | 9393.07 Establish a reference or starting point/datum | 9393.08 Face a surface | 9393.09 Turn an outside diameter (OD) | 9393.10 Drill a hole |
| | 9393.11 Bore an inside diameter (ID) | 9393.12 Ream a hole | 9393.13 Tap a hole | 9393.14 Turn an ID or OD thread | 9393.15 Cut a taper |

Competency Analysis Profile: Mould Maker 431A *(all unshaded skill sets must be completed)*

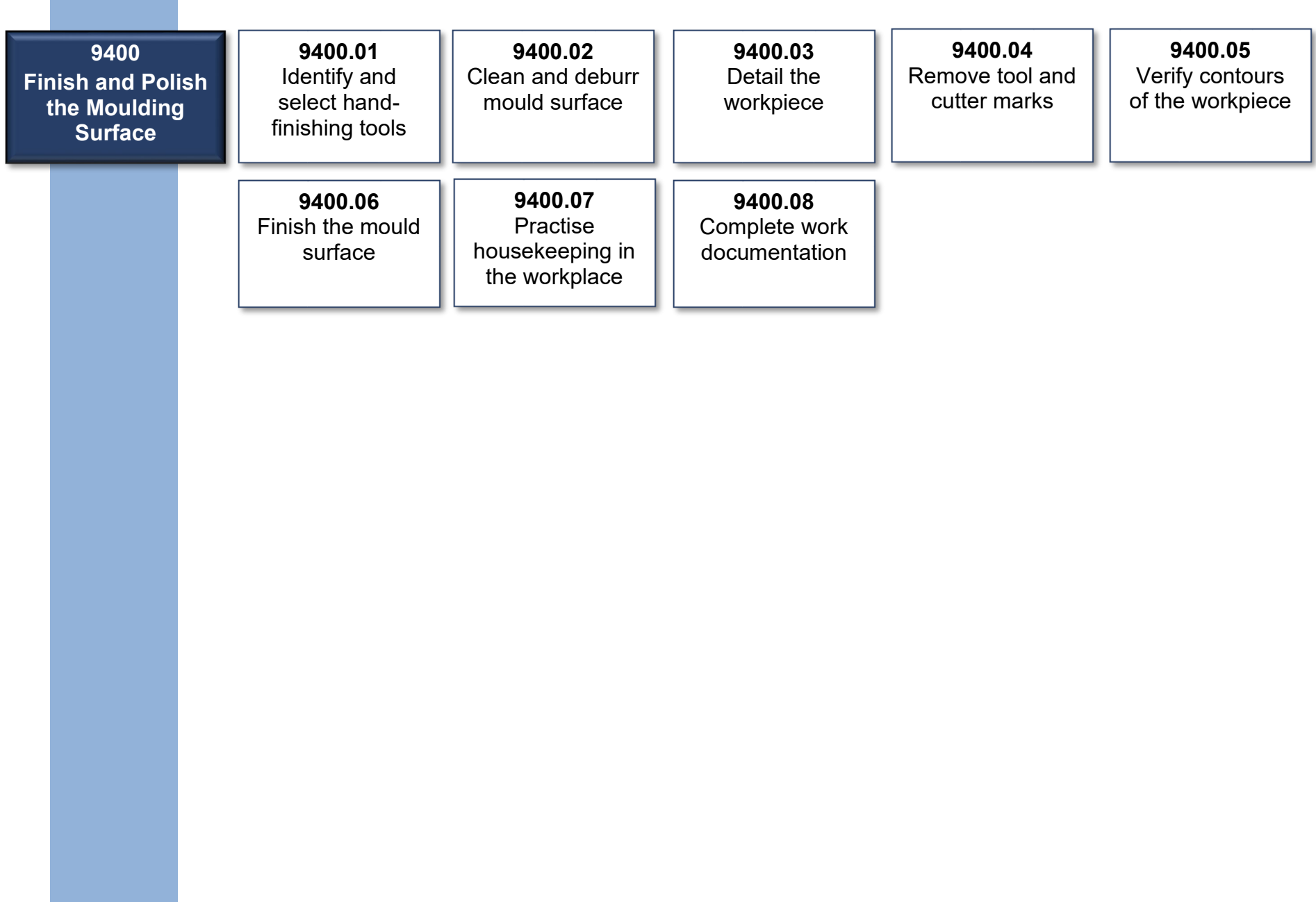
| | | | | | |
|--|--|--|---|--|---|
| 9393 Perform Lathe Work (Continued) | 9393.16 Knurl cylindrical surface patterns | 9393.17 Groove and part-off | 9393.18 Maintain material identification | 9393.19 Deburr workpiece | 9393.20 Perform inspection |
| | 9393.21 Practise housekeeping in the workplace | 9393.22 Complete work documentation | | | |
| 9394 Perform Milling | 9394.01 Select milling cutting tools | 9394.02 Identify and prepare milling cutting tools | 9394.03 Align and secure workpiece in milling machine | 9394.04 Set-up milling cutting tools | 9394.05 Select speeds and feeds of mill |
| | 9394.06 Fly-cut | 9394.07 Face-mill | 9394.08 Machine steps, cut-outs, angles, and open slots | 9394.09 Machine a pocket | 9394.10 Machine a hole |
| | 9394.11 Ream a hole | 9394.12 Tap a hole | 9394.13 Bore holes | 9394.14 Maintain material identification | 9394.15 Deburr workpiece |
| | 9394.16 Perform inspection | 9394.17 Practise housekeeping in the workplace | 9394.18 Complete work documentation | | |
| | | | | | |
| | | | | | |

Competency Analysis Profile: Mould Maker 431A *(all unshaded skill sets must be completed)*



Competency Analysis Profile: Mould Maker 431A *(all unshaded skill sets must be completed)*

| | | | | | | | |
|--|--|--|---|--|--|--|--|
| 9397 Create a Plan for the Mould-Building Process | 9397.01 Review the mould design and components | 9397.02 Develop the mould-building plan | 9397.03 Perform mould-building related calculations | 9397.04 Organize mould and component materials | 9397.05 Produce a detailed sketch of mould and/or components | | |
| | 9398 Manufacture Mould components | 9398.01 Rough-out mould components | 9398.02 Stabilize workpiece material | 9398.03 Manufacture cores | 9398.04 Manufacture mould components | 9398.05 Manufacture cavities | |
| | | 9398.06 Manufacture detailed components | 9398.07 Maintain material identification | 9398.08 Deburr workpiece | 9398.09 Perform inspection | 9398.10 Practise housekeeping in the workplace | |
| | | 9398.11 Complete work documentation | | | | | |
| | | 9399 Fit, Assemble and Repair Mould | 9399.01 Transfer and locate holes | 9399.02 Fit and size mould components | 9399.03 Check cooling and heating circuits | 9399.04 Install ejector system components | 9399.05 Install runner system components |
| | | | 9399.06 Spot and inspect assembled mould | 9399.07 Repair mould, if required | 9399.08 Perform inspection | 9399.09 Practise housekeeping in the workplace | 9399.10 Complete work documentation |



Completing Your Apprenticeship Program

Once your sponsor agrees you are competent in the required skills, your hours are complete and you have completed all the levels of classroom training required for your trade:

- ✓ Follow the completion instructions on the Completion Form (Appendix A) in the Logbook.
- ✓ Answer any questions that MLITSD staff may have and provide any additional completion documentation that may be required.
- ✓ Once completion is confirmed, MLITSD will issue you a Certificate of Apprenticeship and notify Skilled Trades Ontario.

After Your Apprenticeship

If you are in a trade with a certification exam, Skilled Trades Ontario will receive notice of your completion.

For compulsory trades, you will be issued a Provisional Certificate of Qualification which will allow you to work legally for up to 12 months until you write and pass your examination.

For a non-compulsory trade, once you pass your examination, you will be issued a Certificate of Qualification for your trade.

Preparing For Your Exam

- **To pay for a Certificate of Qualification examination, contact Skilled Trades Ontario** Client Services Department at: 647-847-3000 or toll free at 1-855-299-0028
- **To schedule your exam:** Once you have paid, contact your local Service Delivery Office to book your exam.
- **Download Skilled Trades Ontario exam preparation guide at:** [Exam Resources – Skilled Trades Ontario](#) and/or view the exam preparation guide for Red Seal trades at: red-seal.ca



[SkilledTradesOntario.ca](https://www.skilledtradesontario.ca)